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OF THE

MEDICAL ASSOCIATION

OF

GEORGIA

FIFTY-SIXTH ANNUAL SESSION

1905

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"RESOLVED, That this Association shall not be considered as indorsing views of authors of papers published in connection with the Transactions, unless definitely so indorsed in the Proceedings of the Association.

RESOLVED, That the above resolution appear annually upon the title-page of our published Proceedings."

Transactions 1873.

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(Term expires 1910.)

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Committee on Scientific Work.

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Louis H. Jones, Atlanta (*ex officio*).

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MINUTES

OF THE

Medical Association of Georgia.

Fifty-Sixth Annual Session.

FIRST DAY — MORNING SESSION.

ATLANTA, GA., April 19, 1905.

The Association met in the ballroom of the Kimball House, and was called to order by the President, Dr. Wm. Perrin Nicolson.

Prayer was offered by Rev. J. W. Millard, of Atlanta.

The report of the Committee on Arrangements was called for, but in the absence of the Chairman of that Committee the report was postponed.

The report of the Committee on Necrology was also postponed for the same reason.

The Committee on New Members also requested permission to make their report later.

The Chairman of the Committee on Medical Legislation being out of the city, this report was postponed until his return.

Reports of Special Committees were called for, and Dr. F. W. McRae, as Chairman, presented the following report of the Committee on Reorganization:

Your Committee on Reorganization, recognizing the paramount importance of this question, and wishing to give to every member of

the Association, who so desires, abundant opportunity to be heard fully and freely for or against the proposed Constitution and By-Laws, moves the appointment of a committee of twenty from the State at large to sit with this Committee and give hearings during Wednesday and Thursday and make their report to the special meeting Thursday evening.

FLOYD W. MCRAE, Chairman.

Dr. J. B. Morgan moved that this resolution be laid on the table. Motion carried.

Dr. McRae then presented the following report:

Mr. President and Members of the Medical Association of Georgia:

Your Committee on Reorganization beg leave to submit as their report the subjoined amended Constitution and By-Laws, together with reports from the various States that have adopted unchanged the suggested Constitution and By-Laws sent out by the Committee on Reorganization of the American Medical Association, or with such modifications as seemed best to meet the conditions existing in the different States.

Your Committee has deemed it wise to amend the original report first read before the meeting held in Savannah, 1902, continued in Columbus, 1903, and published in the Transactions, discussed freely in open meeting in Macon, 1904, referred back to the Committee for suggested and advisable changes, with instruction that they make their report to this meeting for rejection or adoption.

Your Committee has worked earnestly and diligently, with only the ultimate good of the Association at heart, and this report is the result of their labors.

Your Committee has considered carefully every criticism offered and has tried to meet every reasonable objection. The work has not been of our seeking, but an onerous duty imposed upon us by this body. If the result of our labor is satisfactory to you, ratify and adopt it; if not, amend and adopt, or reject it, as in your judgment seems best, and none will acquiesce more cheerfully, or work more zealously for the future welfare of the Medical Association of Georgia than will your Committee.

Respectfully submitted.

FLOYD W. MCRAE,
JAS. P. BAIRD,
WILLIS F. WESTMORELAND,
Committee.

Your Committee begs to acknowledge its indebtedness to the President, the Secretary and other members of the Association who have rendered valuable assistance.

Dr. J. B. Morgan then moved that the report of the Chairman of the Committee on Reorganization be received as information, and, if necessary, be published and distributed to the members of the Association. This motion was carried.

Dr. McRae stated that the new Constitution would be distributed among the members so that they could thoroughly understand the proposed change.

Dr. W. F. Westmoreland, as Chairman, made the report of the Committee on New Members, as follows:

REPORT OF COMMITTEE ON NEW MEMBERS.

Mr. President and Gentlemen:

Having been Chairman of this Committee since it was created in 1898, I am familiar with the value of its work. The amount of work that I have done and the time consumed, as the executive of this Committee, I am sure would be surprising to those not familiar with it. The value of the work has passed the experimental stage, as is shown by the gain in members and the financial results. The average of new members is over four times as great. The average fees before our work were $115, since they have been $480. Of the 137 counties there were over fifty without active membership; there are now only 17. This, I think, will be materially reduced before this meeting is over.

If the membership which we secure could be retained, the roll of members should now be about thirteen hundred, or nearly half of the physicians of the State. As it is our membership is only 686, or only about one-fifth. This is a decided decrease instead of an increase in the membership of the Association, and is very unsatisfactory, and shows that we are losing nearly as many as we are taking in.

Since the change in the secretaries in 1901 we have been able to keep up with the membership accurately. On April 15, 1901, we had 618 members; during the year we lost 14, leaving 604. At the April meeting of 1902, at Savannah, we took in 74 new members, giving us 678 members. From the Savannah meeting, 1902, until the Columbus meeting in 1903, we lost 53 members, giving us a membership of 625, or a net gain of 7 members. During this period there was collected $1,736 and expended $1,696.23, making the net gain of the fiscal year $39.77.

For the year a net gain in members, 7; in cash, $39.77. The

report for the next meeting does not show the net gain in members, but though we took in 83 new members the net income shows a decrease, as the net cash gains were only $21.71. During this whole period until now there has only been a gain of 68 members, which is a very poor showing.

Dr. Geo. H. Noble, as Chairman, made the report of the Committee on Arrangements, stating that they had secured the present place of meeting for the Association.

The President called for the reports of Special Committees.

Dr. M. A. Clark, as Chairman of the Committee on Tuberculosis, made the following report:

To the Medical Association of Georgia:

Your committee have the honor to report that the first meeting of the committee was held in Atlanta, June 22, 1904, at which meeting Dr. T. E. Oertel was elected permanent chairman, and Dr. M. A. Clark permanent secretary-treasurer of the committee.

This meeting of your committee constitutes the first organized effort in the crusade against tuberculosis in Georgia.

Subsequent full meetings of the committee have been held in Macon, October 19, 1904, and in Atlanta, April 18, 1905.

In view of the fact that the committee had in hand no funds with which to prosecute its work it was decided to appeal to the public through the press for donations, and in pursuance of this policy the following letters were sent to each daily and weekly newspaper in the State, some two hundred in all.

NOTICE OF MEETING.

April 14, 1905.

My Dear Doctor:

You will please attend a meeting of your committee in Dr. Oertel's room at the Piedmont next *Tuesday evening at 8:30.*

Hoping to see you there, I am

Yours very truly,

W. A. CLARK, Secretary.

Dr. R. R. Kime, Atlanta, Ga.

To the Editor of .....

The Committee on Tuberculosis request that you print the enclosed open letter, notice it editorially and open a subscription list.

The committee is composed as indicated by this letterhead.

Funds collected should be sent to Dr. M. A. Clark, Secretary-treasurer Committee on Tuberculosis, Macon, Ga.

You will please not permit the names of the members of the committee to appear in print in any connection with the work of the committee.

Thanking you in advance for the interest we feel you will be sure to manifest in this work, the most far-reaching and important of the kind ever inaugurated in Georgia, and trusting you may be able to forward a large contribution from the good people of your section, we remain,

Yours respectfully,

COMMITTEE ON TUBERCULOSIS,
of the Medical Association of Georgia.

AN OPEN LETTER.

Mr. Editor:—

At the last meeting of the Medical Association of Georgia a special committee was appointed to be known as the Committee on Tuberculosis. The duties of this body include the consideration and study of tuberculosis in the State of Georgia. They are to collect statistics, investigate methods of cure of tuberculosis and in every way possible to contribute to the suppression of consumption in all of its forms.

The task set the committee is of a magnitude far greater than any one uninformed upon the subject can appreciate.

The mortality for tuberculosis in Georgia is one out of every ten deaths. Before this tremendous fatality can be reduced the general public must be taught the chief facts about consumption, how to prevent it, how it is recognized in its earliest stage and that it is curable and not the hopeless condition that it has so long been thought to be.

The public can be reached through various channels, chief among which are free lectures, distribution of literature and instruction in the schools. In other States and countries much has been accomplished in the fight against tuberculosis.

As an example, in Germany the mortality from consumption has been reduced one-third in the last twenty-five years.

What has been done elsewhere may be done here. But to accomplish this the committee needs money. It can not have too much money, for there is no end to the work needed to be done.

It has therefore been deemed wise to appeal to the people of the State of Georgia through the public press.

The committee feel that they have a right to expect that every person in the State should contribute something, according to his means, to this cause, for there is scarcely a home in Georgia from which consumption has not claimed a victim.

The work undertaken is for the good of the people. If it is to be prosecuted to a successful issue the people must support it.

It is truly a vital issue, for to-day there are thousands in this great State who are afflicted with tuberculosis and who owe their unhappy condition to just one thing—IGNORANCE.

In order that our work may be facilitated and made effective we request that you open a subscription list and receive contributions to be turned over to the Treasurer of the committee for the purpose above stated.

We also earnestly request that you second our endeavors by lending the influence of your paper in the battle against the "GREAT WHITE PLAGUE."

Respectfully,

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

We believed that these letters would bring to the attention of the public the efforts being made by the State Medical Association and be an opening wedge for future

communications through the press. These letters were published in our large cities and elsewhere. The amount of public enthusiasm they aroused is evinced by the fact that not one cent was donated the committee in response to this appeal.

Following the lead of workers elsewhere in the crusade against tuberculosis the committee empowered its members to give public lectures on behalf of the committee on the various phases of tuberculosis. Such lectures have been delivered by members of the committee whenever occasion has presented.

Because of the fact that the lay press reaches every home in Georgia, the following card was sent to the editors of the papers throughout the State:

"*Please Answer Following Question and Mail this Card at Once.*

If copy is furnished you, will you publish, from time to time, articles on tuberculosis; its cause, prevention and cure? Said articles will be eight in number, written in a popular style—may be understood by any one, and are intended to educate the general public how to fight tuberculosis.

Respectfully,

COMMITTEE ON TUBERCULOSIS,
of the Medical Association of Georgia.

ANSWER .....

PAPER ....."

In reply to this invitation forty-two editors signified their readiness to publish matter furnished by the committee, and the following letters were formulated and sent to them for publication in their respective journals:

TUBERCULOSIS.

LETTER NO. 1.

WHAT IT IS AND WHAT IT DOES.

The disease known as tuberculosis is as old as history. It affects the young and the old. It enters alike the palace of the rich and the hovel of the poor. It spares neither age nor sex nor condition. Nor is man alone its victim. Among domestic animals it is quite common. Cattle are frequently affected by it; goats and hogs and less commonly, dogs, cats, horses and sheep. Even fowls and reptiles are afflicted with a species of tuberculosis similar to that found in the human being. Tuberculosis is common in almost every quarter of the globe. It is, however, a disease which flourishes in crowded quarters of large cities where the conditions are unsanitary and life strenuous.

The disease is caused by a germ. This germ, called the "bacillus tuberculosis," is a very small, rod-shaped plant. All bacteria are plants, not animals, and many bacteria are not only not harmful, but are so essential that life could not long exist without them. Such are the bacteria that cause putrefaction and fermentation, and those that through their action upon the soil, during the progress of their growth, break it up into simple compounds, such as may be appropriated to the use of the higher plants which in turn are the food of animal life. Comparatively there are only a few harmful bacteria, and among these the tubercle bacillus holds high rank. More people die of tuberculosis than of diphtheria and smallpox and scarlet fever and typhoid fever and yellow fever and plague combined.

The tubercle bacillus enters the body in one of three ways:

First—Through inhalation, into the lungs, or throat or nasal passages.

Second—By ingestion, eating tuberculous food or drinking tuberculous milk.

Third—By inoculation, through a wound of the skin or lining of the mouth.

When the tubercle bacilli gain entrance to the body in one of the above ways they may be killed by the cells of the body or they may simply be covered up and kept from doing harm, unless they "break jail," or they may produce the disease at the point where they lie.

In the latter case the bacilli multiply, eventually an ulcer is formed and from this point the bacilli spread to more distant parts, either through the blood or if the ulcer is on the lungs, by being inhaled or by being coughed up and swallowed, in which case they may produce intestinal tuberculosis.

As they grow they produce a poison, known as a toxin, and it is largely due to the presence of this poison in the system that the loss of flesh and other distressing symptoms are due. As the disease progresses, other bacteria enter the body and invade the tissues that have been weakened by the presence of the tubercle bacilli. These are the common germs that cause suppuration, the so-called pus organisms, and any case of "mixed infection," that is, one complicated by the presence of the pus germs, is always more severe.

The germs of tuberculosis always come from a case of tuberculosis. They do not multiply outside of the animal body under ordinary conditions, though they may be grown upon certain substances, like beef extract with glycerine and other so-called "culture media," and have been by this means very thoroughly studied by numerous investigators.

From this brief review of what tuberculosis is we may formulate as fact No. 1 the following conclusion:

Tuberculosis is an infectious, communicable disease, due to the presence in the tissues, usually in the lungs, of the germ of consumption called the tubercle bacillus.

Next to the lungs the intestines are the most common site of beginning tuberculosis, though the disease may start in any part of the body and may be limited to the part or may become general. The statement has been repeatedly made that with the exception of pneumonia, as

many people die from tuberculosis as from all other contagious diseases combined. It is estimated that in the United States alone there die yearly from tuberculosis over one hundred and fifty thousand souls. Let us then remember as fact No. 2: Tuberculosis causes at least ten per cent. of all deaths.

But the condition is much worse than this, for the majority of the victims of tuberculosis are at the age when they have just become productive, when they are fitted to go out into the world as wage-earners. The disease is pre-eminently one of young adult life.

Between the ages of fifteen and forty, one-third of all deaths are due to tuberculosis. Between the ages of twenty and twenty-four, 42 per cent. of the deaths from all causes are due to tuberculosis.

Now, if I were writing facts like these about some disease prevailing only in China, I should expect you to be mildly interested. I should expect you to sigh, shake your head and if you are a man, light a fresh cigar, and forget the matter in the press of business.

But here are well-substantiated statistics, for they have been computed by life-insurance firms for the sake of money-getting, and they are not about China alone—they are true of our time and of our place. If smallpox were killing nearly one-half of our young men and maidens, do you think for a moment that you would sit with folded hands or watch the slaughter with listless eye?

I think not!

We would have ten pesthouses, if need be, and business would stagnate and cheeks would blanch and stout hearts would quail. But the marvel of marvels is that we remain so inactive, so apathetic, while this "pestilence that walketh in darkness" and this "destruction that wasteth at noonday," stalks among us and reaps the fruit of promise before our very eyes.

It is with the hope that the public will awaken to the necessity for action that this and the other articles on the subject which will appear in the public press are written.

What then is tuberculosis? A communicable disease caused by the tubercle bacillus.

What does tuberculosis do? With the exception of pneumonia, it kills more people than all other infectious diseases combined.

Think about this.

Then read the next article, which will be about preventing tuberculosis.

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

PREVENTION OF TUBERCULOSIS.

LETTER NO. 2.

In the former article on tuberculosis we showed that it was a communicable disease due to a specific germ, called the tubercle bacillus. We found the germ usually grew in the lungs of human beings, in which cases it causes that form of tuberculosis known as pulmonary tuberculosis, or more commonly as consumption.

We found that tuberculosis sometimes begins in the intestines and that it is contracted through eating food contaminated by the tubercle bacillus.

Let us first consider the question of prevention of that form of the disease contracted by inhalation of the germ.

Where does the tubercle bacillus come from? It can only come from one source—from a person who is suffering from consumption. When you plant a grain of corn you expect a corn plant to sprout from it. You also expect to gather an ear of corn from the plant at some future time. Now you would be immeasurably surprised if instead of an ear of corn you found growing upon the cornstalk an apple or a Dutch cheese.

Just as the little grain of corn obeys the great laws of the universe and produces its kind, and only its kind, so one kind of bacterium will bring forth other bacteria which have properties identical with its own. Nor would you expect your corn plant to flourish in the top of a tree as does the mistletoe. It is adapted to growth in the ground and it must have rain, enough rain and no more, and sunshine, enough sunshine and not more, or it will

not grow or will grow in only a half-hearted way and produce no fruit.

Now we found that bacteria are plants. They are very small plants it is true, but does not the violet require in the main just what the oak tree does? Neither will grow without ground to grow in and water to drink and sun to warm them. And so bacteria must come from like bacteria, and must have for their growth a proper soil, moisture and heat.

Do you remember what the Bible says about some folks loving darkness rather than light, because their deeds are evil?

Well this is true of bacteria. But it is true of both good and bad bacteria, for sunlight is their deadliest enemy. Sunlight is nature's great germicide. Now, if the seeds of consumption must pass from one person who has the disease to a healthy person before the latter can contract tuberculosis, the solution of the whole riddle would be to catch all of the consumptives and lock them up or put them on an island by themselves, and let the germs perish with their victims. But manifestly this is impossible. More than this, it is not necessary.

True there are those who advocate treating the consumptive as a dangerous person who menaces the welfare of the community and isolating him as one would a leper. These people mean well, perhaps, but they do the cause of the crusade against tuberculosis a great deal of harm by advocating measures that are extreme and unnecessary, as I hope to prove to you.

Let us start out with the assumption that a given consumptive spits an ounce of pus a day. Suppose that he does this for a space of three years. This would be a very low estimate of the amount of expectoration, and would amount to 1,095 ounces of pus cast off from the lungs of one individual. Now, let us assume that in each ounce of this sputum there were even 1,000,000 tubercle bacilli.

You will see that our friend with tuberculosis can sow a goodly crop of seed in his time.

Does the estimate of 1,000,000 germs to the ounce of sputa seem to you excessive? I assure you it is very

moderate. In fact, it has been computed that a consumptive in the third stage of the disease expectorates daily 4,000,000,000 tubercle bacilli.

You will probably ask: Why, then, does not every one contract the disease?

For the same reason, friend, that all the acorns that grow on trees don't hatch into oak trees. Most of the tubercle bacilli that are coughed up are in some way destroyed. Probably sunlight kills the large majority of them. They do not find the right conditions for further growth, no proper soil and environment. But don't forget that enough of them do find favorable conditions to result in the death yearly of 150,000 persons in our own country alone.

Enough to constitute a very respectable army corps, is it not?

If you put a grain of corn away in a dry place you may prove that when placed under the proper conditions it will sprout and grow after lying dormant and apparently dead for many years. And it is so with bacteria. It has been repeatedly proven that tubercle bacilli will live for several years when dried if they are kept in the shade.

It has also been proven that the consumptive constantly throws off tubercle bacilli when sneezing or coughing, even though he may not spit. They are contained in the fine mist or spray that flies from his mouth during these acts.

So you can see that a tuberculosis patient may easily contaminate a room.

Tubercle bacilli can readily be collected from the dust of public buildings.

The sputa containing them is perhaps cast upon the floor, dries, is powdered by passing feet, rises as dust in the air and is breathed into the lungs of whoever passes.

Result: If the soil is favorable, that is, if the body is not able to overcome and kill the bacteria, another case of tuberculosis.

Fortunately, in the majority of cases, the body is strong enough to gain the upper hand. We say of such a person that his resistive powers are good, or that he is immune. You will probably wish to know to what his power of

immunity is due. I am sorry, but I can not answer that. Neither can any or all of the wise men in the world. But here is a fact. There is a bacillus called the anthrax bacillus that is very deadly to some animals. If you would inject beneath the skin of a white rat the smallest amount of these bacteria he would die within thirty-six hours and his blood would be swarming with anthrax bacilli. Now if you will take a common gray rat you may inject not only small but large numbers of anthrax bacilli under his skin and he will never miss a meal.

We say the gray rat is immune to anthrax. Some day we may know why. Now we know only the fact. And so some people seem to be immune to the tubercle bacillus. We have already seen that age is a very important factor, for of course there is a definite reason why the person between 20 and 24 years is so much more liable to contract tuberculosis than a younger or an older one would be.

But unfortunately we have no way of determining the immunity of the human being, nor have we any means at present of rendering a person immune to tuberculosis.

So the problem resolves itself into that of taking care of the germ-laden sputum of the consumptive.

In another paper I shall deal with the duty of the consumptive to his fellows.

Suffice it to say here that if every person in the world who has tuberculosis or who will contract it within the next ten years, could know his true condition and would care properly for his sputum, we should have no further trouble with the disease. It would die a natural death.

But this fortunate state of affairs can not be hoped for. What we must endeavor to do is to spread among all classes of people what I may call a working knowledge of tuberculosis.

For the sake of the consumptive and for the sake of the community, it is essential that the disease should be recognized in its earliest stages. If every one knew the early symptoms the victims would be led to consult the doctor at a much earlier stage of the malady than is usual.

The common symptoms of consumption are loss of

flesh, fever, usually in the afternoons, cough, expectoration, difficulty in breathing, loss of appetite, night sweats and hectic flush.

If you have the slightest reason to suspect that you have tuberculosis you should at once consult some doctor who is an expert in the diagnosis of the disease.

I use the word expert advisedly, because in the early stages of consumption only an expert will be able to detect the condition.

Let me remark in passing that tobacco does not kill germs, despite the popular belief to the contrary.

The question of infection by means of contaminated food we must defer until another time.

Let us to-day learn well this one lesson:

Tuberculosis may be prevented by properly disposing of the germ-laden sputum of consumptives.

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

PREVENTION OF TUBERCULOSIS.

LETTER NO. 3.

In the former letters we found that tuberculosis is commonly propagated through the agency of tubercle bacilli found in the spittle of those suffering from tuberculosis of the lungs.

From this we drew the conclusion that consumption might be prevented, and in time stamped out if those having the disease were careful in the disposition of their sputum.

While I told you this, it is only a half truth, put in such fashion for sake of being plain in argument.

If you read the first of this series of letters, you will remember that tuberculosis may be contracted through eating food contaminated with the tubercle bacillus.

There has been a great deal of discussion about this point, but it seems now to be proven beyond doubt that many cases of tuberculosis, especially in children, are brought about by eating food containing tubercle bacilli.

The food most apt to contain them is cow's milk. But-

ter made from such milk is particularly liable to be infected with tubercle bacilli, for the reason that they stick to the fat globules and when the milk is "separated" by a machine, they are thrown off with the cream from which the butter is made.

For several reasons there is little danger in contracting tuberculosis from infected meat. First of these, is the fact that the muscle, which constitutes the "meat" we eat, is usually not affected by the disease.

Besides this, the meat is usually well cooked and this process destroys any germs that may be present. Then all of the beef that is killed in the large slaughterhouses of the West is inspected and unhealthy and tubercular meat is condemned and destroyed. So you need not be afraid to eat beef.

Now let us return to the consideration of the milk and butter question.

How many cases of tuberculosis are caused by infection through this agency?

There is no means of determining what the status of this question is with us here in Georgia. It is a question that has not been asked frequently here. We have not taken sufficient interest in the lives and welfare of our little ones, for it affects these chiefly, to investigate this very important matter.

In other words, there are no statistics either for the mortality of children from tuberculosis or the condition of the sources from which we obtain our milk. We can only consider the data furnished us by more enterprising and careful people elsewhere.

In Germany and England it has been shown that about one-fourth of all cases of tuberculosis are probably due to infection through milk from tuberculous cattle. In some of the Northern States whole herds of dairy cattle have been found to be tuberculous.

With us it is probable that this state of affairs does not exist. Personally, I believe that the cattle of the South are comparatively free from tuberculosis.

But you may be very sure they are not entirely free from it. Even if a small per cent. of the cows that fur-

nish our milk-supply are tuberculous I think you will allow that it is high time something should be done to detect their condition and remove this menace to the public health.

You would not drink the milk from a tubercular cow if you knew it.

I am sure that you would feel better if you knew that the cattle of your dairyman were proven free from the disease. Unfortunately a cow may be giving milk loaded with tubercle bacilli and present no symptoms of the disease. It has been repeatedly demonstrated that it is not necessary that the udder of an animal be tuberculous in order that the milk shall contain the organism. Many tubercle bacilli may gain access to the milk when the udder and teats are entirely healthy, though when they become diseased the number of tubercle bacilli in the milk is much greater.

How, then, may we demonstrate whether or not a given animal is producing milk that is contaminated with tubercle bacilli?

Fortunately there is a very sure and easy method.

This is the tuberculin test. It consists in injecting beneath the skins of the animal a solution known as tuberculin, which is derived from the tubercle bacilli grown artificially in the laboratory. When this is done, if the cow is tubercular, there is a characteristic rise of the body temperature within a few hours.

In the absence of this rise of temperature the animal may be declared free from tuberculosis.

This test has been used upon many thousands of cattle and is known to be as reliable as any test can be, quite enough so for all practical purposes.

Remember, that without this test we can only presume that a cow is healthy. The test is entirely free from danger to the cow. The test is simple and reliable. The test is not expensive. These three facts are worth consideration even though we have a very small per cent. of tuberculous cattle among our milk herds. Among the many laws that are needed to insure the public safety, is one requiring that this tuberculin test shall be periodically ap-

plied to all cattle from which milk is sold. If the people of Georgia want such a law, they may have it for the asking. "The people make the laws"—sometimes.

So if you care for the health of yourself and your family and if you believe I have stated the plain facts of the case to you, see that you, for one, take some steps in the regulation of your milk-supply. Know that the cows from which it comes are not tuberculous.

If you are not willing to take my statements, investigate the subject for yourself. You can at least ask your milkman, are your cattle tuberculin tested? Do this first, then see about the enactment of laws by our city councils and by our State Legislature.

Having gone thus far, let us once more take stock. What are the chief points that should be borne in mind?

1. *Tuberculosis is an infectious, communicable disease.*

2. *Tuberculosis is the cause of at least one of every ten deaths.*

3. *Tuberculosis is transmitted chiefly: (a) through infected sputa; (b) through infected milk.*

4. *Tuberculosis is a preventable disease.*

What are we doing to prevent it?

Let me ask again that you ask yourself.

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

DUTY OF THE TUBERCULAR PATIENT TO THE PUBLIC.

LETTER NO. 4.

In the former letters of this series we have seen that tuberculosis is a disease caused by the tubercle bacillus and that this tubercle bacillus, or germ, is transmitted from one person to another through the sputa or spit that is coughed up from a lung affected with the disease. We found that this germ, like all bacteria, is a plant, just as much a plant as is an oak tree or a potato vine. That being a plant it is alive and grows according to certain laws as do all other plants. That it must have the right kind

of soil—the body of some warm-blooded animal—in which to grow, that it must have heat and moisture.

We found also that in common with the seeds of higher plants, as corn and wheat, and in fact like some plants themselves, it can retain its vitality for a long time even when dried, and resume its growth when it is again brought under favorable conditions. We also found that it may be grown outside of the animal body upon certain substances known as "artificial media" and studied in the laboratory.

It will interest you, perhaps, to know that the yeast that is used in making your bread and beer is similar to bacteria, is a kind of germ. And if we go a step higher the molds, though more complex in structure than the bacteria, are in many respects like them. They are only a simple form of plant without the green coloring-matter of the higher forms of plant-life. We saw also that a consumptive in the latter stages of the disease coughed up daily several billions of these little plants called tubercle bacilli, each one of which may produce the disease in some one else provided it gains access to his body and the cells of his body are not able to destroy it. And beside the above is the stern fact that of every ten people of our community one at least will die from infection with these little plants—the tubercle bacilli.

This brings it home to us, to you and me. It seems strange that it should be necessary to say this fact over and yet I know that it is necessary and if I could feel sure that every person in our community who is old enough to think, would pause for a moment and let this fact stare him in the face, I should feel that my object in writing these letters had been attained. But history shows that all great reforms have been brought about gradually.

It would be visionary to even hope that the public will be suddenly impressed with the gravity of the situation in regard to the "Great White Plague."

Granting that the person who has tuberculosis of the lungs is daily coughing up enough germs to infect the whole community, we must allow that he may be a constant and ever-present source of danger to all of us.

And so he undoubtedly does owe something to the general public, to those other persons who are not infected with this death-dealing plant, and to those who will surely become infected if he and others afflicted as he is fail to do their duty to their neighbor.

It is well first to inquire what these duties are.

I should say that the primary one is to be sure that he has tuberculosis. Early diagnosis is of the first importance to the patient and to the public, for without this no one is in a position to either intelligently take care of his sputum or to employ the proper measure for his cure. And, yet, physicians are constantly brought in contact with people who, strange as it may seem, do not want to know it if they have tuberculosis.

They will say: "Doctor, I am afraid my lungs are weak; but if I have anything the matter, I don't want you to tell me." Or else some well-meaning relative or friend will tell the doctor: "I am sure that it would never do, doctor, to let John know there is anything the matter with his lungs."

"If he has consumption you must not tell him so, because he would give up and die."

Such requests are all too frequent. Surely it needs no argument to prove they are entirely unwise. How is it possible for one with tuberculosis to intelligently co-operate in his treatment, and, more important still, to carry out the necessary precautions in regard to his sputa unless he knows in full his condition and the facts appertaining to it? I have no hesitation in making the assertion that in the light of present knowledge the physician who withholds from his patient the fact that he has pulmonary tuberculosis is negligent of his patient's interest and of his plain duty to the public.

Therefore you who read this, if you have any reason, the slightest to suspect that you have tuberculosis, you are doing yourself and your fellow men a great injustice if you do not at once set about determining whether or not such is the case.

For yourself, you are losing valuable time, for it is the early stages of the disease that are the most hopeful and

curable, while on the other hand you may be the means of conveying the disease to some other, who through your carelessness and negligence may be brought to suffer and die. This is not a pleasant thought, but it is a true one. I think you will agree with me that no pains should be spared to establish the fact of the existence of tuberculosis at the earliest moment.

And it seems to me that this need has not been sufficiently emphasized. For it is the consumptive who does not know his condition and therefore takes no precautions that is thus rendered all the more dangerous. "Forewarned is forearmed" in this disease.

Let that person who has some slight "throat trouble," or who spits a little blood in the mornings, or who has a little fever in the afternoons, or is subject to sweats at night and is losing flesh; let him investigate his condition and assure himself that he is free from tuberculosis.

Having established the fact that he has tuberculosis the duty of the consumptive to the public is plain. He must use every precaution to guard against transmitting the disease to others. How is he to do this? The answer is both short and long. Briefly, he must be careful that none of his sputum escapes complete disinfection.

The ways best to accomplish this end are numerous.

Every consumptive should spend at least a few weeks in a sanitarium for tuberculous patients.

The object of this is that he may be educated in the proper care of himself and of his sputum.

This is not a whim of my own. It is the opinion of the men best qualified to have an opinion. If you do not agree with it remember that probably you have no right to an opinion about it for the reason that you have no special knowledge and experience upon which to base an opinion. It is a strange fact that the average person, while he would not think of venting his opinion about a difficult problem in mathematics unless he had studied the subject or upon the steering of a ship unless he were a pilot, or upon any other matter requiring special training which he has not had, while he will not venture an opinion upon these things will stoutly proclaim his views about

things medical and what is more wonderful still, expect other folk to accept them.

The consumptive should never swallow his sputum, as by doing so he is almost certain to infect the intestines. As soon as it is coughed up it should be expectorated into some suitable vessel, never either on the street or floor or in the corner of a room or in a public spittoon. Nowhere, in fact, but in a vessel which is provided for the purpose and which contains some fluid disinfectant. Even then he must be careful that the material goes directly into the fluid without touching the sides of the vessel, for it is when it becomes dried that sputa becomes dangerous.

Flies must be kept from it, as the tubercle bacillus is not harmed by passing through the stomach of the fly. There is no question that flies are one of the chief sources of danger of infection in this and other diseases. They should be excluded from the room of a consumptive so far as possible.

There are many forms of "spit cups" which the consumptive may use.

Some of these are so formed that they may be carried in the pocket and either subsequently destroyed by fire, as the paper spit cups, or disinfected by boiling when made of metal.

Never spit into a handkerchief or cloth. Such action is entirely unsanitary and unfortunately is all too commonly advised by physicians. It can not be too strongly condemned.

The best disinfectant that may be used in the spit cup is a strong solution of creolin, about a teaspoonful to the pint of water. This will kill the tubercle bacilli in a short time and also renders the sputum fluid so that it can be easily emptied from the vessel.

When coughing or sneezing the consumptive should always hold his handkerchief before his face. This is to prevent the tubercle bacilli from being expelled in the fine mist that is thrown off during these acts.

A consumptive should never kiss or be kissed by another person.

Remember that such a kiss may carry death with it.

The danger from this source may not be great, but there certainly is danger.

Avoid it! You can prove your love better by so doing than by allowing sentiment to outweigh reason.

These are a few of the things a consumptive owes to the public.

If you are a consumptive or have a relative or a friend who is consumptive see to it that you or they have proper instructions in this most imperative and vital duty.

The consumptive must be fully alive to his duty to the public before we can hope to accomplish much in the extermination of tuberculosis.

Society has a right to demand that the consumptive shall not menace the public weal.

In the next letter we will see what the consumptive has a right to expect of the public.

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

THE DUTY OF THE PUBLIC TO THE TUBERCULAR PATIENT.

LETTER NO. 5.

Our last letter dealt with the duty of the tubercular patient to the public. We saw that his first duty was to ascertain the nature of the disease afflicting him at an early moment and that his second duty lay in taking proper care of his sputum.

What may the consumptive properly expect from the general public?

Above all else that he be treated as a human being, with due kindness and consideration and neither shunned as if he were a leper nor shut up in a pesthouse as if he were ill with smallpox. While consumption is an infectious and communicable disease, it is only so when the consumptive is ignorant or careless. If he is ignorant, he should be taught. If he is careless or willfully breaks the laws of sanitation, then he does not deserve either pity or consideration, and I think should be dealt with as

is best for the general good. But as I have said before, there are few cases that, if they are instructed as to the proper course for them to pursue, will not follow it.

Certainly nothing will be gained—except opposition—by the fanatical howling of those persons who wish to treat every consumptive as if he had the plague and isolate him from his fellows. The consumptive must be instructed how to live, and if necessary furnished the means to carry out the instructions.

I take it the consumptive has a right to require at the hands of the public:

First—Consideration.

Second—Instruction.

Third—Means for carrying out the instruction.

To the rich consumptive these requirements, with the exception of the first, do not apply. But the majority of consumptives are not rich; many are very poor. It is of the poor consumptive that I wish particularly to speak. In what way does the State owe him instruction? Briefly in this wise. He may be a very intelligent man, a good carpenter or mason or merchant, and yet he may be totally without knowledge in relation to the disease from which he is suffering. In order that he may be placed in position to recover, for remember that consumption is a curable disease, and at the same time may not infect others, it is the duty of the State to provide against the possibility of his remaining ignorant of these matters.

While it is true that he may consult a physician and so receive proper instruction the State has no right to presume that this will be the case. The consumptive has a right to expect that the State will guard his interests in this matter because of the fact that if he fails to receive proper instruction, he becomes a menace to society at large. And society has also a right to expect action on the part of its authorities for the same reason.

The municipal government should require and enforce registration of all tubercular cases. Printed directions as to the conduct of the patient and those with whom he is brought in contact should be distributed either through his physician or the agents of the board of health.

If he is too poor to employ a physician one should be

provided him. He should be visited regularly by his physician, who should be required to see that the necessary sanitary regulations are carried out. If necessary, he should be furnished with the means for conforming to the regulations, that is, with proper spittoons and disinfectants.

Those persons living in the same room or dwelling with the consumptive should be required to submit to examination to determine if they have contracted the disease.

There should in all communities be a committee on tuberculosis consisting of persons especially trained and qualified for the work.

To this committee all indigent persons should have a right to apply for advice relative to tuberculosis and aid if this were necessary.

Careful disinfection of the premises should follow death or removal of a tuberculous case.

These are some of the duties of the State to the consumptive. *Besides these it is the duty of the State to provide suitable institutions for the education and care of consumptives.*

The general hospital is no place for the consumptive. It is not adapted to his wants in any way, for usually it is not possible to segregate such patients who when they seek admission to the general hospital are in the last stage of the disease, and come here to die.

The object of a hospital for consumptives should be to teach them how to live; to cure as many as possible and to educate others so that they could go about their former duties with some degree of safety to themselves and without danger to their fellows. In many States such sanatoria are already in operation or are in course of construction.

We are proud of our sanitarium for insane. How long will we be obliged to be ashamed of having none for consumptives? The one is quite as necessary as the other. There are more consumptives than insane.

Remember, the function of such an institution is largely economic, to teach the consumptive how to live, and return him to his sphere of usefulness.

A consumptive who has been trained in a modern sanitarium should no longer be considered a factor in the spread of the disease.

Another duty of the municipal government is to provide for the free examination of sputa for the tubercle bacillus. By examination with the microscope the bacilli may often be found in the spittle when it is quite impossible to detect the presence of the disease by other means.

Finally, it is the duty of the municipal government to instruct not only the consumptive, but the public at large, in the simple rules of hygiene that tend to lessen the liability to contract tuberculosis. This can best be done through circulars, the public press and free lectures.

In New York and other places they have been giving free lectures about tuberculosis for several years. Gradually by this and other means the public is gaining knowledge of the subject. The war waged by the authorities of New York against tuberculosis has resulted in a decrease of twenty per cent. of the mortality from tuberculosis.

And this has been accomplished within the past ten years. This is due to the aid given the consumptive and the fact that the public is being enlightened as to the disease.

We may do likewise!

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

THE SERVANT AS A FACTOR IN THE SPREAD OF TUBERCULOSIS.

LETTER NO. 6.

Before taking up the special subject of this paper let us again take stock.

The chief facts about tuberculosis will bear repeating until every man, woman and child in the country knows them by heart. In review, then, we have so far found these facts to be as follows:

1. Tuberculosis is an infectious, communicable disease.

2. Tuberculosis is caused by the bacillus tuberculosis (a germ or bacterium, in fact a little plant).

3. The germs exist in the lungs and are cast off in the sputa of persons having tuberculosis.

4. They also occur in milk and meat of cattle having tuberculosis.

5. Tuberculosis is contracted by breathing in the germs or by eating contaminated food.

6. Tuberculosis is preventable.

7. People suffering with tuberculosis must take proper care of their sputa in order that they may not infect others.

With these facts before us, what may be said about the servant as a factor in the spread of this disease? I will tell you, and I think you will agree with me, that it is a factor well worth consideration.

One may say there is not a white house servant in Georgia, and be not far from right. The thing we must consider then is the status of tuberculosis in the negro. When the negro was a slave he did not suffer from tuberculosis. It can be proven by any one old enough to have knowledge of the matter that before the war a negro with tuberculosis was a curiosity. Recently a gentleman told me that his father had often said that before the war he never knew of but one negro with tuberculosis, and that his case was the talk of the State.

We may say in broad terms then that forty years ago the negro was immune to tuberculosis.

What is the condition to-day? Statistics are lacking and a positive statement can not be made, but from the best information obtainable at least one-fourth of all deaths due to disease among the negroes are due to tuberculosis.

Think of this one moment. *In the short space of forty years the death-rate from tuberculosis in the negro race increased from nothing to twenty-five per cent. The death-rate from tuberculosis in the negroes of Georgia is twice that of the whites, at least twice, probably three times as great.*

If it has come to this in forty years, what will the next

forty years bring forth if something is not done to check the spread of tuberculosis in this race? I was told only the other day by a negro teacher that the negroes are themselves becoming alarmed. It is among the educated class that tuberculosis is most in evidence. As this teacher expresses it: "We find that we are educating our young men and women only to have them go out and die from tuberculosis."

The records of one of our negro hospitals for the past five years show that one-third of the deaths occurring there in that time from disease were due to tuberculosis.

NOW THESE ARE FACTS.

If you doubt them investigate for yourself.

Let us say for sake of illustration that at the present moment there are in the city of Augusta five hundred negroes having tuberculosis. I believe this number to be a conservative one. Of these five hundred, how many are there who take proper care of their germ-laden sputum? I can tell you—not one!

What does this signify? Well, here are five hundred servants, cooks, nurses, housemaids, butlers, porters, most of them, as needs must in a city, working within doors, within our doors. They cook our food, they wash our clothes, they nurse our children. And the while they scatter broadcast the seeds of dissolution.

They apply for medical aid only when too ill to work. When they come to the doctor, what is he to do with them? It is almost useless to try to instruct them in the proper manner of life. They would neither understand nor follow such instruction. They usually refuse to go to the hospital until they are turned out of doors through inability to pay rent or by friends or relatives to whom they have become a burden.

There is no way to compel them to go to the hospital. They must be let wander about a source of contamination to every dwelling into which they come and a menace to the public health wherever they go.

All this because this is a country devoted to personal

liberty. "All men were born free and equal" is twaddle! *Ignorance should not be allowed to trample upon the rights of others for the sake of sentiment.*

Not for one moment do I advocate the slightest hardship to the unfortunate being who has contracted the white plague. But if he is irresponsible for any reason, then, for the good of the greatest number, he should be restrained, by force if necessary, from infecting harm on others.

When smallpox prevails, what do we do? Inspectors and doctors under the board of health search out every case, and then that case is kept by proper measures from spreading the disease.

What do we do with a case of tuberculosis? Nothing. And yet we have five hundred deaths from tuberculosis to one from smallpox.

Let me say again, lest some one misunderstand my meaning. I do not advocate the same measures for tubercular patients as are used in the prevention of smallpox. But most emphatically do I advocate such measures as are adapted to the disease.

And also—I believe that when through ignorance or willfulness a tubercular patient menaces the general public he should be prevented from doing so.

Instruction and measures, the gentlest first, and if he will not heed these, then detention in a special hospital for consumptives. This will come one day. It is sure to come as the public is better instructed.

Every doctor will tell you that the negro is a most unsatisfactory patient. This is true because he can not be depended upon to carry out instructions, because he is careless and shiftless about himself and in regard to others. This is partially a racial trait and partly due to want of knowledge. I have never seen a negro who seemed afraid to die.

When told he has a fatal disease, his usual reply is: "Well, I got to die some time." They will fold their hands and die when a fight might have won the battle.

Here is the problem and we are face to face with it.

Our servants are dying like sheep from the white plague.

Think of what a cook or a laundress or a nurse with tuberculosis may do.

What must you do about it? Why, be sure that your servants are free from tuberculosis. If there is any doubt about it have them examined by a physician who is competent.

It may cost you a small fee, but it will be better than paying some other expenses that may come if you do not take this precaution.

Nor will this work hardship on your servant. If the case is one of tuberculosis, he should immediately give up any indoor life.

I have known of but one recovery from tuberculosis in a negro. This was a nurse in whom I detected the disease in an early stage. I sent her immediately to the country. She worked in the field and picked cotton and got well.

Perhaps I may have presented to you another phase of "the negro question."

Five hundred deaths from tuberculosis to one from smallpox.

Tuberculosis an infectious, communicable disease.

Tuberculosis a preventive disease.

Negro mortality from tuberculosis twenty-five per cent.

What is being done about it?

Nothing!

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

THE CURE OF TUBERCULOSIS.

LETTER NO. 7.

In the former letters of this series we have seen that tuberculosis is an infectious and communicable disease; that it is a disease which by proper measures may be prevented, and what these measures are.

Now, naturally, the question arises: Is tuberculosis a curable disease?

The answer of this question is our present purpose.

I am glad to be able to say most positively *tuberculosis is a curable disease.*

The inquiring mind will straightway ask: Why is it then that so many people die from consumption? If it is curable what are the doctors about that they allow 150,000 souls to die annually in these United States alone? There are many reasons, friend, why this unfortunate state of affairs exists. When we shall have considered the means of cure, you may see them for yourself.

Of first importance in the cure of tuberculosis is an early diagnosis of the condition.

The best results are obtained when the existence of the disease is discovered before it has made headway, before it has had time to undermine the constitution and destroy tissues that can not be replaced. If a man's leg is cut off it will not grow again like the leg of a crab or starfish. And so lung tissue that is destroyed is never replaced by lung tissue. If the part is healed, as it may be, there remains scar tissue, which, of course, is of no service to the individual. When large areas of lung tissue are destroyed by tuberculosis recovery is the more difficult for two reasons, because the individual does not get enough oxygen from this damaged lung to support his vital functions, and more important still, because when so large an amount of lung is diseased it means that there is a proportionate amount of poison thrown off into the system and circulation by the bacilli of tuberculosis that have caused the extensive destruction. Then, too, when the tubercle bacilli have gained considerable headway, have, in other words, involved a large portion of one lung and partly destroyed it, other microbes come in and aid in the work of destruction. These so-called "pus organisms" are the reinforcement of the skirmish line of tubercle bacilli and really do more damage than they. We have in such a case what is known as a "mixed infection."

A fire is much easier quenched when it is small. A breath will blow out a match, the flame of which may start a conflagration that a hundred fire engines can not control.

And so with tuberculosis. When discovered in its

earliest form it is not so serious as many other diseases of which people have less fear.

Under proper conditions 75 per cent. of tubercular cases that have been discovered in the beginning of the first stage get well. That is worth saying over, for I want you to take heed of it. If placed under proper conditions and treatment 75 per cent. of incipient cases of tuberculosis recover.

By the word recover I mean just that, get well, get well entirely, sound and strong. I stress this point because there is a popular belief quite the contrary. The general public is of one mind, and if you ask ten men "Is tuberculosis curable?" probably each of the ten will answer, no.

Now, remember that while the earlier stages, rather the earliest stage, yields so readily to treatment, when the disease has gained ground, when, to use our former figure, the fire is well started, there is the more difficulty and the less hope of quenching it. When the disease has reached the second stage, few recover under any treatment or conditions. The third stage cases are almost hopeless.

And now you will see how vital a thing it is to make an early diagnosis of the true condition. Unfortunately this is not an easy thing to do.

Tuberculosis usually is an insidious foe. It comes on like a thief in the night and may have been present for months, or even years, before the victim suspects there is much wrong with him. He may then consult a physician, whom he tells that his general health is fairly good. But he has lost some flesh.

He has a little cough, not much, just a hack, that bothers him; coughs up a little something in the morning from his throat, not his lungs; has had some sweats at night, perhaps; don't feel rested in the morning. Usually he also says he thinks he has a "touch of the malaria," as he feels feverish at times. This is the usual story. Every physician has heard it all too often. Examination shows a man in the second stage of pulmonary consumption.

Don't wait until you have reached this stage, friend. If you smell smoke, go look for a fire.

I have spoken of the treatment of consumption. What do I mean by that? *Well, I do not mean any of the many nostrums that are advertised in the daily press and elsewhere. These are one and all frauds.*

The people who make and sell them, these so-called "consumption cures," should be handled by the law, and even now the postoffice department is refusing to be a party to such worse than cheating traffic by refusing to carry in the mails any advertisements of them. This is a most salutary movement. Many a poor devil has spent his hard-earned money and invaluable time taking nostrums advertised to cure consumption, and has found out too late his fatal error.

But there is a cure, and it is within the reach of, not all, unfortunately, but of many, and this cure is *air*. The good, fresh, pure, God-given air.

Yes, there is something else necessary and that is *food —the right kind of food and plenty of it, taken in the right way and at the right time.*

Here, then, is our cure for consumption. Air and food, both of the right kind and quantity.

What about medicines? They are useful, but in a minor degree only. For the most part we may do without them.

The cure of seventy-five per cent. of cases in the earliest stage, as shown by the statistics of sanatoria for the treatment of tuberculosis is accomplished by making the patient live in the fresh air all the time, night and day, and by feeding him all he can eat, good plain food three or four times a day, and milk and eggs in between times; perhaps two quarts of milk and two or three dozen raw eggs besides the regular meals.

Medicines are only given to meet special symptoms.

The much-vaunted creosote and codliver-oil are relegated to the ash-heap so far as this disease is concerned.

What about whiskey? Except in very small quantity it is agreed that it is a poison to the consumptive. There never was a more erroneous idea than that whiskey will cure consumtion. *Some cases have gotten well in spite of whiskey, but it has never cured any one of consumption.*

You have been thinking all this time of climate. How about climate as a factor in the cure of tuberculosis? I hear you ask. Yes, climate is a good thing. But fortunately, most places that I know of have plenty of climate and to spare. So, if you have tuberculosis do not for a moment think it is necessary for you to take the next boat for New Mexico or Colorado. I have known folks to die of tuberculosis in each of those localities.

Friend, we have plenty of climate right here, and none better. I have seen samples of climate from most parts of the United States, and the piece that pleased me most came from Middle Georgia.

It is true that a change of location is frequently of great benefit to the tubercular subject, but is this not true of well people also?

And you have here in our own State your pick of seacoast, mountains and what lies between.

If I should be unfortunate enough to contract tuberculosis I should plant a tent on the top of some high Georgia hill with good old-fashioned red sides and plenty of pine trees and sunshine, and there I should camp, and get well. We can say surely in the light of present knowledge and experience that tuberculosis is a curable disease.

So, to sum up again, tuberculosis is

Communicable,
Preventable,
Curable.

These are the things the people need most to learn.

COMMITTEE ON TUBERCULOSIS,
Medical Association of Georgia.

The funds used by the committee were collected by personal solicitation from friends, and the committee has also to thank the Macon Medical Society for a contribution of twenty-five dollars.

The Governor, in obedience to legislative enactment, having appointed a committee to collect statistics relative to tuberculosis in Georgia, your committee decided not to attempt extensive investigations in this branch of the work, which, while it is of the utmost importance, will be

better accomplished by the above body. We would take occasion to urge upon the members of this Association that they heartily co-operate with the State Commission in order that reliable statistics on tuberculosis may be obtained.

The committee wish hereby to acknowledge with thanks the courtesy shown the committee and the Association by Dr. Chas. Hicks, the chairman of the State Commission on Tuberculosis, in extending your committee an invitation to meet in Macon with the Commission upon the occasion of its organization, which invitation was responded to by your committee attending the meeting, every member being present.

We present for your consideration the following tabulation, showing the mortality from tuberculosis in fifteen of our Southern cities, six of them being in Georgia:

	Average Population Four Years.		Total Deaths All Causes.				Deaths From Tuberculosis.								Deaths per 1,000.							
							1901		1902		1903		1904		1901		1902		1903		1904	
	White.	Colored.	1901	1902	1903	1904	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.
Nashville, Tenn	51,700	30,000	1,612	1,698	1,737	2 001	98	129	110	154	96	101	104	178	1.96	4.30	2.20	5.13	1 92	3.36	2.04	5.93
Chattanooga, Tenn*	27,000	13,000	552	511	178	.....	70	57	30	45	34	31	....	....	1.11	3.91	1.11	3.46	1.26	2.39	....	....
Memphis, Tenn	71,000	59,000	1,926	1,559	2,032	2 310	102	159	88	202	62	145	96	172	1.43	2.69	1.24	3.43	.87	2.46	1.35	2.91
Birmingham, Ala	28,000	16,200	1,009	1,048	134	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Mobile, Ala*	21,400	17,067	930	908	928	..	59	98	57	92	55	107	....	....	2.74	5.76	2.37	5.41	2 56	6 29	....	....
New Orleans, La	283,000	84 000	6,478	6,572	6,705	6,819	504	476	549	489	548	503	567	554	2.16	5.66	2 36	5.82	2 35	5 99	2.43	6 59
Richmond, Va	62 500	38 000	1,907	1,918	1,935	1.876	123	148	118	180	117	123	120	151	1.95	3.10	1.88	4.74	1.87	3 24	1.92	3 98
St. Louis, Mo	590,000	33,000	10,601	10,353	11,145	11,506	911	217	921	210	881	241	1,097	231	1.54	5.57	1.56	5.38	1.49	6.18	1.86	5.92
Savannah, Ga	30,000	24,000	1 369	1,463	1,438	1 028	52	141	55	154	52	160	61	182	1.73	5 87	1.83	6.41	1.73	6 67	2 03	7.58
Macon, Ga	16,000	14,000	408	415	3 5	338	17	35	11	49	11	55	12	37	1.06	2 50	.69	3 50	.69	2.50	.75	2.64
Augusta, Ga*	30,400	19,500	917	907	754	..	28	84	23	55	21	74	....	....	.92	4.31	.76	2 87	.69	3.84	....	....
Brunswick, Ga	4,700	4,500	150	137	134	12	3	17	2	15	3	12	1	9	.64	3.78	.42	3 33	.64	2 66	.21	2 00
Columbus, Ga	10,276	9,027	363	402	339	332	4	29	10	26	13	19	8	22	.39	3.21	.97	2.88	1 26	2.14	.78	2.43
Atlanta, Ga	62,500	44,000	2,141	2 071	2,167	2,559	83	135	102	164	88	133	112	158	1.33	3.07	1.63	3.73	1.24	3.02	1.79	3.36
Waycross, Ga	6,000	2,000	.....	.....	.....	64	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total (Birmingham and Waycross not included)							2,014	1.725	2,076	1,845	1,981	1 684	2,178	1,704	1 46	4 13	1 46	4.31	1.4	3.90	1.52	4.34

*Chattanooga, Mobile, Augusta—Deaths for 1904 not reported.

General average per 1,000 White, 1.47; colored 4.18—both, 2 82.
Death rate of the colored 2.84 times that of the white.

	Population.	Deaths, Tuberculosis.				Cost.			
		1901	1902	1903	1904	1901	1902	1903	1904
Nashville, Tenn..	81,000	227	264	197	282	$ 454,000	$ 528,000	$ 394,000	$ 564,000
Chattanooga, Tenn	40,000	87	75	65	....	174 000	150,000	130,000	.....
Memphis, Tenn...	130,000	261	290	207	268	522,000	580,000	414,000	536,000
Mobile, Ala.	38,500	157	149	162	...	314,000	298,000	324,000	.....
New Orleans, La..	317,000	980	1,038	1,051	1,121	1,960,000	2,076,000	2,102,000	2,242,000
Richmond, Va....	100,500	271	298	240	271	542,000	596,000	480,000	542,000
St. Louis, Mo....	625,000	1,128	1,131	1,122	1,328	2,256,000	2,262,000	2 244,000	2,656,000

GEORGIA.	Population.	Deaths, Tuberculosis.				Cost.			
		1901	1902	1903	1904	1901	1902	1903	1904
Savannah.....	51,000	193	209	212	243	$ 396,000	$ 418,000	$ 424,000	$ 486,000
Macon.....	30.000	52	60	46	49	104,000	120,000	92,000	98,000
Augusta.....	49,000	112	78	95	...	224 000	156.000	190,000	.....
Brunswick.....	9,200	20	17	15	10	40.000	34,000	30,000	20,000
Columbus.....	19,300	31	36	32	30	62,000	72,000	64,000	60,000
Atlanta.....	106,500	218	266	221	270	436,000	532.000	442,000	540,000
Total	268,000	626	666	621	602	$ 1,252,000	$ 1,332,000	$ 1,242,000	$ 1,204,000

2,515 Deaths Tuberculosis, $5,030,000.

There have died of tuberculosis in these cities during the past four years 15,207 persons. Computing the economic value of life at $2,000, and this is a conservative estimate, the money loss to these cities would reach the enormous figure of $30,414,000.

The work thus far accomplished by your committee is limited, and only a small beginning of that which the future should bring forth.

It is the opinion of your committee that the Medical Association of Georgia, representing as it does the medical profession of the State, should lead in spirit and in fact all matters relating to the public health, and to the end that the crusade against tuberculosis be effective, we have to submit as follows:

1st. That the Committee on Tuberculosis be empowered to add to itself by election by the committee one member of the Association from each county of the State.

2d. That the committee be authorized by the Association to appear before the State Legislature and request financial aid for the prosecution of its work.

3d. That the Association direct the committee, through its representatives, to urge upon the Legislature the necessity for a State sanitarium for tuberculosis.

There are at present in the United States 138 sanitariums, hospitals and camps for the special treatment of tuberculosis, with a total number of 8,064 beds.

There are in addition in the United States 31 special dispensaries, treating yearly 9,075 patients. Of these, there are two in the South, one in Baltimore, and one in the United States Army camp, in Pensacola, Fla.

These statistics need no comment beyond the one that in the State of Georgia there is neither sanitarium, hospital, camp or dispensary for the special treatment of tuberculosis.

Of the above number of beds, 4,863 are entirely free. Of this number, leaving out the government camp at Pensacola, there are, south of Washington, D. C., only *two* free beds, these in the Aiken Cottages, Aiken, S. C., an institution supported by contributions by people living out of the State of South Carolina.

Eight States have erected or are building free State sanitariums for the treatment of tuberculosis, and in seventeen States there is strong effort being made to secure legislation for like institutions.

Three main avenues of education relative to tuberculosis invite our attention:

1st. The public schools. The teachers should be taught how to train their charges not only in the problems of book-lore, but in the quite as essential problem of how to be strong and well and bodily capable. Special instructions should be given on the nature and prevention of tuberculosis, and definite days should be set apart for this purpose. The designation of a special day which in every public school in Georgia would be devoted to teaching the children simple facts about tuberculosis would, we believe, exert a salutary influence upon our entire community. Literature distributed to the schoolchildren would find its way into almost every home, and by this means alone our people would in a few years be acquainted

with the chief facts relative to the cause, prevention and cure of tuberculosis.

2d. The public press should be utilized so far as possible by the publication, from time to time, of such matter as may be instructive to the general public.

3d. Free lectures on tuberculosis should be delivered by competent persons in every city and hamlet within our borders.

With time and your hearty co-operation and support, these are some of the means your committee have in view to the end that tuberculosis, "the most deadly and most needless scourge with which humanity is afflicted," shall no longer prey upon us.

The key to the situation is *education*.

T. E. OERTEL, Chairman, Augusta, Ga.
M. A. CLARK, Secretary-Treasurer, Macon, Ga.
R. R. KIME, Atlanta, Ga.
H. F. HARRIS, Atlanta, Ga.
R. M. THOMSON, Savannah, Ga.

Committee.

Dr. Morgan moved that the following program be adopted as the official program of the Association. Carried.

WEDNESDAY, APRIL 19.

MORNING SESSION, 9.30 O'CLOCK.

Prayer—By the Rev. J. W. Millard.
Report of the Committee on Arrangements.
Report of Committee on Necrology.
Report of Committee on New Members.
Report of Committee on Medical Legislation.
Report of Special Committees.
Report of Secretary and Treasurer.
Application for Membership.

1. Character in a Physician is Like Beauty in the Statue; it Asks for Infinite Pains. E. Morgan, M.D., Arlington.
2. The Doctor and the Public Schools. Theo. Toepel, M.D., Atlanta.
3. Bromide Poisoning. C. C. Stockard, M.D., Atlanta.
4. Report of a Case of Myasthenia Gravis. J. Cheston King, M.D., Atlanta.

5. Journals for Revenue Only. Ralph M. Thomson, M.D., Savannah.
6. LaGrippe. J. W. Palmer, M.D., Ailey.
7. Report of Cases from the Surgical Clinic of the Atlanta College of Physicians and Surgeons. J. L. Campbell, M.D., Atlanta.
8. The Relation of Diseases of the Stomach to Chronic Diarrhea. J. N. LeConte, M.D., Atlanta.
9. Some Unusual Cases of Intestinal Diseases. H. R. Slack, M.D., LaGrange.
10. The Mode of Infection in Uncinariasis. Claude A. Smith, M.D., Atlanta.

AFTERNOON SESSION, 2.30 O'CLOCK.

11. Embarrassments in the Differentiation of Appendicitis from other Diseases. E. H. Richardson, M.D., Atlanta.
12. The Antiseptic and Eliminative Treatment of Typhoid Fever. J. B. Warnell, M.D., Adabelle.
13. Infantile Scorbutus. J. R. Garner, M.D., Atlanta.
14. Mucous Colitis. W. B. Armstrong, M.D., Atlanta.
15. Diagnosis and Therapeutic Importance of the Recent Advances Made in the Examination of the Feces. H. F. Harris, M.D., Atlanta.
16. Circumcision, its Importance in the Treatment and Prevention of Certain Reflex Nervous Phenomena. Mark H. O'Daniel, M.D., Bullards.
17. X-rays in External Treatment. M. B. Hutchins, M.D., Atlanta.
18. Croup and Membranous Croup. S. A. Visanska, M.D., Atlanta.
19. Clinical Significance of the Aspect of the Tongue. A. A. Davidson, M.D., Augusta.
20. Keloid—Fr. Keloide; German Knollenkrebs. From a Semi-Barbaric Custom of Piercing the Lobule of the Ear for the Purpose of Wearing Ear-rings. W. L. Bullard, M.D., Columbus.
21. Typhoid Fever of Twenty-five Years Ago; its Treatment Compared with that of To-day. J. L. Selman, M.D., Douglasville.

THURSDAY, APRIL 20.

MORNING SESSION, 9 O'CLOCK.

Reading of the Minutes.
Report of Board of Censors.
Report of Executive Committee.
Application for membership.

22. Occult Hemorrhage; its Diagnostic Value in Cancer and Ulcer of the Stomach. L. Amster, M.D., Atlanta.
23. Induction of Labor in Albuminuria. H. McHatton, M.D., Macon

24. The Toxemia of Pregnancy. A. P. Taylor, M.D., Thomasville.
25. Prevention and Treatment of Puerperal Infection. L. C. Fischer, M.D., Atlanta.
26. The Physician's Duty to the Pregnant Woman. Jno. W. Daniel, M.D., Savannah.
27. Prompt Repair of Lacerations of the Female Generative Organs After Labor. E. C. Davis, M.D., Atlanta.
28. Report of Cases of Tuberculosis Treated with Bacillus X (Maher). T. E. Oertel, M.D., Augusta.
29. The True Value of Drugs in the Treatment of Consumption. M. M. Saliba, M.D., Savannah.
30. Medical and Surgical Hodge-Podge. W. B. Hardman, M.D., Commerce.
31. Treatment of Pneumonia. J. E. Sommerfield, M.D., Atlanta.
32. Pneumonia, its Etiology, Pathology and Treatment. A. C. Davidson, M.D., Sharon.
33. Lobar Pneumonia in Children. M. McH. Hull, M.D., Atlanta.
34. Albuminuria. E. B. Block, M.D., Atlanta.

AFTERNOON SESSION, 2.30 O'CLOCK.

35. Purpura Hemorrhagica; its Pathology and Treatment. A. B. Matthews, M.D., Elberton.
36. The Suture as a Factor in Primary Union. J. B. Morgan, M.D., Augusta.
37. Appendicitis, Medical and Surgical. R. R. Kime, M.D., Atlanta.
38. The Treatment of Hernia. W. C. DeLamar, M.D., Mountain Hill.
39. Some Remarks on the Results of Hernia Operations. W. S. Elkin, M.D., Atlanta.
40. Report of a Case of Abscess of the Lung; Operation with Recovery. W. D. Travis, M.D., Covington.
41. Surgical Treatment of Rectocele, also Exhibition of Pathological Specimen of Enterolith with Spontaneous Anastomosis of Intestines. Geo. H. Noble, M.D., Atlanta.
42. Celiac Parotitis, Two Cases, Remarks. Howard J. Williams, M.D., Macon.
43. Nephrectomy for Gun-shot Wound of the Kidney; Report of a Case. J. McF. Gaston, M.D., Atlanta.
44. The Clinical Consideration of Tumors. W. F. Westmoreland, M.D., Atlanta.
45. Conditions Found in Knee Joints Disabled by Chronic Rheumatism, and their Treatment. Michael Hoke, M.D., Atlanta.

THURSDAY, 8.30 P.M.

Special session to consider the new Constitution.

FRIDAY, APRIL 21.

MORNING SESSION, 9 O'CLOCK.

Reading of minutes.
Report of Board of Censors.
Report of Executive Committee.
Application for membership.

46. A Simple and Efficient Management of Emphysema of the Chest. J. H. Hammond, M.D., LaFayette.
47. Corneal Abscission; a Report of Forty Operations. J. M. Crawford, M.D., Atlanta.
48. Some Points Out of My Own Experience in Refraction and the Fitting of Glasses. Ross P. Cox, M.D., Rome.
49. Is Bilateral Operation for Cataract ever Justifiable; if Not, How Soon After Operation on the First Eye is it Safe to Extract the Second Cataract? A. W. Calhoun, M.D., Atlanta.
50. Auto-Toxemia in Ocular Diseases. W. J. Cox, M.D., Barnesville.
51. The Cause and Treatment of Lachrymal Stenosis in Infants. Dunbar Roy, M.D., Atlanta.
52. Some of the Modern Uses of the Galvano-Cautery, with a Suggestion of its Past and Present Abuses. A. G. Hobbs, M.D., Atlanta.
53. Recurrent Ocular Paralysis with Pain. A. W. Stirling, M.D., Atlanta.
54. Refraction. C. H. Peete, M.D., Macon.
55. Complications of Chronic Suppuration of the Middle Ear, with Special Reference to Thrombosis of the Lateral Sinus; its Symptoms and Treatment. F. M. Cunningham, M.D., Macon.

Election of officers, 1 p.m.

AFTERNOON SESSION, 3 O'CLOCK.

56. Prostatic Massage. W. L. Champion, M.D., Atlanta.
57. Report of Some Interesting Cases of Hysterectomy. H. P. Cooper, M.D., Atlanta.
58. Intravenous versus Subcutaneous Infusion, with their Respective Indications. Monroe Smith, M.D., Atlanta.
59. The Use of Rubber Bag Cervical Dilators in Obstetrics. F. G. Hodgson, M.D., Atlanta.
60. The Origin of Tuberculosis in Children. R. W. Hynds, M.D., Atlanta.
61. Sprue. St. J. B. Graham, M.D., Savannah.
62. Etiology, and Prevention of Perineal Lacerations, with Special Reference to the Shoulders. Archibald Smith, M.D., Atlanta.

63. Four Interesting Cases of Kidney Surgery. Thos. R. Wright, M.D., Augusta.
64. Methods of Intestinal Anatomosis. Geo. R. White, M.D., Savannah.
65. A Case of Ovariotomy for the Relief of Extreme Dysmenorrhea. O. B. Bush, M.D., Pelham.
66. Typhoid Fever. F. M. Brantly, M.D., Senoia.

GENERAL INFORMATION.

The meetings of the Association will be held in the ballroom of the Kimball House.

On Wednesday night at nine o'clock, the members will be tendered a Dutch supper at the Piedmont Hotel.

On Thursday night at 8.30, there will be a special meeting of the Association to consider the question of the adoption of the new Constitution.

On Thursday, from 5.30 to 7.00 p.m., Dr. L. Amster will tender the members a buffet supper at his residence, 267 Capitol avenue. Take Capitol avenue car at intersection of Peachtree and Marietta streets.

The railroads will give the usual rate of a fare and a third for the round trip, on the certificate plan. Members, when purchasing ticket at starting point should get a certificate from the ticket agent. This certificate must be signed by the secretary and vised by Mr. Jos. Richardson at room 729 Equitable Building. This then entitles holder to purchase return ticket for one-third fare.

The Capitol City and the Piedmont Driving Clubs will extend the privileges of the clubs to all visiting members.

The hotels have agreed to make special rates to the members.

N. B.—No paper will appear in the Transactions unless handed to the Secretary before the adjournment of the meeting.

The President appointed Dr. H. McHatton and Dr. W. B. Tate to serve on the Board of Censors in place of absent members, and appointed Dr. Alexander Mack as Chairman, and Dr. T. E. Oertel as Secretary of the Board of Censors.

The reading of papers was then taken up.

Dr. Theo. Toepel, of Atlanta, presented a paper on "The Doctor and the Public Schools."

MEDICAL DEPT LIBRARY
EMORY UNIVERSITY

This paper was discussed by Drs. J. McFadden Gaston, J. W. Duncan, R. R. Kime.

Dr. Jas. B. Baird, as Chairman of the Committee on Medical Legislation, read the report as follows:

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

To the Medical Association of Georgia.

GENTLEMEN: The Committee on Medical Legislation begs leave to report that since the last meeting of the Association the only measure affecting the special interests of the medical profession and requiring the attention of your Committee, was a bill before the Legislature, at its last session, amending the statute establishing the several boards of medical examiners in this State and prescribing their powers and duties.

Your Committee cooperated with the friends of the bill, and advocated its passage before the committee of the General Assembly to whom it was referred. The Act was passed, and is now the law of the State.

The amendment provides that the examining boards shall have the authority to recognize licenses issued by other States having the same standard as this State, upon the payment of the required fee, without further examination, provided that other States shall grant a similar courtesy and in like manner recognize licenses issued by the examining boards of Georgia, and provided further, that physicians who were lawfully engaged in the practice of medicine in this State prior to the establishment of the several examining boards shall be allowed to practice in other States without undergoing any preliminary examination.

The statute seeks to establish reciprocity, in this particular, between the various States, but it is inoperative in this State toward the license of any other State which fails or refuses to reciprocate.

Respectfully submitted.

JAS. B. BAIRD,
C. D. HURT,
W. S. ELKIN,
MICHAEL HOKE,
FLOYD W. MCRAE,
J. C. OLMSTED,
Committee.

Atlanta, April 19, 1905.

The President called for the report of the committee

appointed to investigate the method of Dr. Maury M. Stapler, of Macon, for treating deaf-mutism, and the report of that committee was presented by Dr. A. W. Stirling, as follows:

Mr. President and Gentlemen:

The committee appointed in 1904, consisting of Drs. Calhoun, Oertel and Stirling to inquire into certain claims brought forward at various times by Dr. M. M. Stapler, of Macon, Ga., relative to the successful treatment of certain cases of deafness and deaf-mutism, begs to report as follows, after having seen and examined Dr. Stapler's instruments, after having discussed the matter with him either personally or by letter, and after having considered the criticisms which have been brought against his method:

1. We find that Dr. Stapler's contention is that by inserting tubes into the nose, or into the nose and external ears, and by then using a pump attached to the main tube from which the others branch, he is able to move the stapes along with the membrane covering the oval window to which it is attached, and thereby to produce a hyperemia within the labyrinth.

2. Dr. Stapler believes that deafness is frequently caused by the results of inflammatory action in the neighborhood of the stapes (in which he is borne out by modern authorities), and that by the strong suction, adhesions may be broken, and mobility of the bone increased, while the labyrinthine congestion he considers may be of benefit in retaining a more normal position.

3. While this action upon the stapes is Dr. Stapler's main desire, he contends that other beneficial results ensue, such as the cleansing of the eustachian tubes and middle ear.

4. We see no reason to doubt that the rarefication of the air produced by the suction so applied may reach the whole interior of the middle ear; that when the nasal tubes alone are used all movable parts within the middle ear must be drawn in, supposing the eustachian tubes to be patent, and that when the ear-tubes are also used, while the other parts within the middle ear may move, the intact drum-head, receiving equal suction upon either side remains therefore unmoved.

5. We are of opinion that the evidence brought forward by Dr. Stapler, while suggestive, is quite inadequate to scientifically prove that his method is superior to those others which have hitherto been used for the cure of deafness. At the same time we have no reason to state that his claims may not have a perfectly reasonable basis, though our opportunity of judging of the practical effects of his

treatment has been too limited to enable us to give any opinion upon that subject.

6. Dr. Stapler states that he has never seen any unfortunate results from his treatment, but he agrees that considerable care should be used in making strong suction in certain conditions of the ears.

7. In view of the facts that dumbness is simply a consequence of total, or of a high degree of, deafness, which has either been congenital, or has originated in the early years of life; that among the general pathological conditions associated with dumbness are the results of inflammation of the labyrinth or middle ear, intra-uterine or subsequent to various other diseases such as adenoids, fevers, diphtheria, etc.; that probably 75 per cent. of deaf-mutes possess some modicum of hearing; that deaf-mutism of a congenital nature has been shown by others as well as by Dr. Stapler to be fully as hopeful as when acquired; that a number of cases of congenital total deafness have, even without treatment, been known to gain a very considerable amount of hearing; and that in the words of a high authority, "if greater attention were given to the treatment of diseases of the ear in childhood, mutism might in some cases be averted or cured," we desire to state that while unable to give any opinion concerning the probable results, any man who is conscientiously working upon this important subject, as we believe Dr. Stapler is doing, should, independently of all preconceived ideas, be encouraged until he has had sufficient opportunity to demonstrate what can be done by this method which he advocates.

We would, therefore, be pleased if the physicians of some of the various institutes for deaf-mutes in this country could be induced either to try Dr. Stapler's method themselves or to permit him to do so upon some of their patients, because, if it is even slightly more successful than ordinary methods, it might prehaps suffice in some instance to make the difference between mutism and speech.

We recommend that a committee be appointed to receive two years hence Dr. Stapler's report of cases, should he care to present one, each case to be countersigned by an aurist of repute.

T. E. OERTEL,
A. W. STIRLING,
A. W. CALHOUN,
Committee.

April 17, 1905.

The reading of papers was resumed.

Dr. J. Cheston King, of Atlanta, read a paper entitled, "Report of a Case of Myasthenia Gravis."

Dr. J. W. Palmer, of Ailey, read a paper on "La-Grippe."

Dr. J. L. Campbell, of Atlanta, presented a paper entitled, "Report of Cases from the Surgical Clinic of the Atlanta College of Physicians and Surgeons."

Dr. Claude A. Smith, of Atlanta, presented a paper on "The Mode of Infection in Uncinariasis," with lantern illustrations of the lesions.

This paper was discussed by Drs. M. A. Clarke and Claude A. Smith (in closing).

The Board of Censors reported favorably upon the following names applying for membership in the Association, and they were elected to membership in the Association:

Name.	Residence.
G. O. Allen	Fargo.
B. C. Almond	Winder.
C. R. Andrews	Atlanta.
W. S. Ansley	Decatur.
W. H. Aycock	Williamson.
C. L. Ayers	Carnesville.
S. T. Barnett	Atlanta.
J. R. Barton	Forest Park.
J. C. Bennett	Jefferson.
B. F. Bond	Carrollton.
W. A. Borders	Sonoraville.
J. P. Bowdoin	Adairsville.
J. H. Bowen	Canon.
H. M. Branham	Brunswick.
E. C. Brown	Hawkinsville.
L. R. Brown	Sharon.
W. T. Brown	Atlanta.
C. A. Bucher	Fitzgerald.
W. W. Calhoun	Bluffton.
W. H. Campbell	Chipley.
J. N. Carter	Savannah.
L. A. Carter	Nashville.
W. A. Chapman	Cedartown.
J. N. Cheney	Silver Creek.
A. F. Christopher	Mineral Bluff.
H. N. Clements	Lenox.

Name.	Residence.
R. B. Cloud	Austell.
E. T. Coleman	Graymont.
T. J. Collier	Atlanta.
Martin Cooley	Savannah.
F. M. Cunningham	Macon.
J. W. Curry	Rome.
D. Q. Dallas	Pavo.
H. C. Derrick	Oglethorpe.
C. A. Dexter	Columbus.
W. J. Dismuke	Irwinville.
H. R. Donaldson	Atlanta.
F. J. Erwin	Blairsville.
Paul Faver	Fayetteville.
H. E. Felton	Cartersville.
E. T. Fincher	East Point.
A. P. Flowers	Atlanta.
A. G. Fort	Lumpkin.
H. M. Freeman	Toccoa.
W. L. Funkhouser	Rome.
L. G. Garrett	Austell.
L. M. Gaines	Atlanta.
W. L. Gilbert	Atlanta.
J. M. Goldsmith	Atlanta.
H. J. Goodwyn	Roopville.
C. A. Greer	Oglethorpe.
J. C. Griffies	Burwell.
E. P. Ham	Gainesville.
C. Hamilton	Rome.
A. P. Hanie	Hartwell.
W. P. Harbin	Rome.
W. T. Haygood	Farmington.
C. C. Harrold	Macon.
C. D. Heard	Atlanta.
L. W. Hodges	Winder.
T. N. Hodges	Oconee.
F. G. Hodgson	Atlanta.
R. L. Hollis	Hayston.
J. M. Horne	Finleyson.
G. P. Hurst	Monroe.
R. W. Hynds	Atlanta.
J. E. D. Isbell	Toccoa.
W. A. Jackson	Atlanta.
W. C. Jarnagin	Atlanta.
J. H. Johns	Atlanta.
E. G. Jones	Atlanta.

Name.	Residence.
W. T. Jones	Atlanta.
M. M. Johnson	Waycross.
E. H. Kenimer	Bishop.
W. C. Kellogg	Augusta.
G. T. Kesner	Woodcliff.
A. H. Lindorme	Atlanta.
M. M. Lively	Statesboro.
T. C. Longino	Atlanta.
T. D. Longino	Atlanta.
T. Lowry	Stilesboro.
G. R. Maner	Warrenton.
J. C. Mathews	Griffin.
C. M. Mickle	Texas.
W. H. Moss	Atlanta.
W. A. Mulherrin	Augusta.
R. D. Nash	Norwood.
W. T. Nash	Philomath.
J. L. Nunnally	Griffin.
T. E. Oden	Blackshear.
B. I. O'Kelly	Atlanta.
S. B. Palmer	Macon.
J. Z. Patrick	Statesboro.
L. T. Pattillo	Atlanta.
W. E. Person	Atlanta.
W. C. Pirkle	Baxley.
J. L. Porter	Augusta.
J. E. Pritchard	Resaca.
J. W. Quillian	Buford.
K. L. Reid	Atlanta.
B. F. Riley	Atlanta.
S. R. Roberts	Oxford.
E. H. Robertson	Dallas.
L. C. Roughlin	Atlanta.
C. C. L. Rudicil	Chickamauga.
W. E. Rushin	Daffin.
R. B. Saxon	Sylvania.
W. C. Selman	Atlanta.
J. H. Session	Babcock.
W. J. Shaw	Rome.
J. M. Sigman	Savannah.
A. W. Simpson	Washington.
O. O. Simpson	Norcross.
G. L. Smith	Swainsboro.
L. S. Smith	Edgewood.
J. M. Spinks	Rockmart.

Name.	Residence.
F. M. Spruell	Temple.
W. H. Steele	Jackson.
J. O. Strickland	Pembroke.
J. M. Suttles	Ben Hill.
W. E. Taylor	Atlanta.
T. M. Talbot	Valdosta.
B. C. Teasley	Hartwell.
J. H. Troutt	Pennington.
J. P. Turk	Canton.
G. H. Turner	Rico.
T. G. Underwood	Maysville.
C. P. Ward	Atlanta.
A. R. Watkins	Crosskeys.
A. F. Wenshirs	Vernal.
A. L. Wilkins	Jesup.
P. Wilson	Newborn.
S. Wilson	Yatesville.
A. D. White	Pendergrass.
W. E. Wood	Dalton.

On motion, the Association adjourned to meet at 2.30 p.m.

FIRST DAY—AFTERNOON SESSION.

The Association reassembled at 2.30, and was called to order by the President, Dr. W. P. Nicolson.

The reading of papers was taken up.

Dr. A. A. Davidson, of Augusta, read a paper on "The Clinical Significance of the Aspect of the Tongue."

Dr. J. L. Selman, of Douglasville, presented a paper on "Typhoid Fever of Twenty-five Years Ago; its Treatment Compared with that of To-day."

Dr. W. B. Armstrong, of Atlanta, read a paper entitled "Mucous Colitis," which was discussed by Dr. H. F. Harris.

Dr. H. F. Harris, of Atlanta, read a paper on "Diagnostic and Therapeutic Importance of the Recent Advances Made in the Examination of the Feces," which was discussed by Drs. Claude A. Smith, F. G. Hodgson and H. F. Harris (in closing).

Dr. Mark H. O'Daniel, of Bullards, read a paper entitled "Circumscision; its Importance in the Treatment and Prevention of Certain Reflex Nervous Phenomena."

Dr. M. B. Hutchins, of Atlanta, read a paper on "X-

rays in External Treatment," which was discussed by Dr. H. R. Slack.

Dr. S. A. Visanska, of Atlanta, presented a paper on "Croup and Membranous Croup."

This paper was discussed by Drs. E. C. Cartledge, J. W. Duncan, H. W. Terrell, M. A. Clarke, St. J. B. Graham, W. H. Aycock, T. J. McArthur, F. M. Cunningham, M. M. Hull, W. S. Kendrick, Claude A. Smith, J. P. Kennedy and S. A. Visanska (in closing).

The Association adjourned until 9 a.m., Thursday.

SECOND DAY—MORNING SESSION.

The meeting was called to order at 9 a.m. by the President, Dr. W. P. Nicolson.

Dr. Louis H. Jones, Secretary and Treasurer of the Association, presented the following report, which was adopted:

REPORT OF THE SECRETARY AND TREASURER FOR THE YEAR ENDING APRIL 18, 1905.

Mr. President and Gentlemen:

The Association now has 686 active members upon its roll. During the past year, three members have resigned. So far as I am aware, but one member has died, Dr. W. H. Doughty, Sr., of Augusta.

Notwithstanding the most continued and persistent effort upon the part of the Secretary to collect the dues, one hundred and fifty-seven members have not paid their dues for the year 1904. Of this number thirty-three owe also for 1903. It is true that many of these will pay up at this meeting, yet the work of the Secretary would be materially facilitated if the members would pay promptly.

I again request that all members changing their address would promptly notify me of the fact. I would also greatly appreciate any information regarding the death of any member. At the present time my only source of information is the death notices which appear in the Atlanta papers.

During the year just closed there was collected from all sources $1,914; there was a balance in the treasury, one year ago, of $594.32. There was expended for all purposes, since the date of the last meeting, $1,925.44, leaving in the treasury at the present time a balance of $582.88.

The men who have resigned are: Dr. M. X. Corbin, of Savannah; Dr. J. G. Van Marter, of Savannah, and Dr. R. B. Ridley, of Atlanta. All of these were in good standing in the Association, and dues paid up to the present time.

LOUIS H. JONES,
Secretary and Treasurer.

Dr. *Louis H. Jones, Secretary and Treasurer,*

1904.			
April 15.	Balance in bank	$ 594 32	
	Dues collected April 15, 1904, to April 15, 1905	1,914 00	$2,508 32
			$ 2,508 32

In account with the Medical Association of Georgia. *Cr.*

1904.			
April	25.	Chas Hicks	$ 49 77
"	25.	Foote & Davies Co	143 50
"	26.	R. L. Polk	6 00
June	1.	C. A. Smith	100 00
"	2.	J. P. Stephens Engraving Co	2 00
Sept.	10.	W. F. Westmoreland	83 46
"	23.	Franklin Printing & Publishing Co	650 00
Oct.	13.	Rhodes-Haverty Furniture Co	8 50
Nov.	11.	Franklin Printing & Publishing Co	160 00
Dec.	9.	J. P. Stevens Engraving Co	13 75
Jan.	13.	Atlanta Rubber Stamp & Stencil Works	2 00
"	14.	Franklin Printing & Publishing Co	50 00
"	24.	Atlanta Rubber Stamp & Stencil Works	1 13
Feb.	2.	O. D. Small	1 92
"	8.	L. H. Jones (stamps)	10 00
March	1.	O. D. Small	3 90
"	7.	Southern Express Co. (Trans. ex. on)	1 10
"	20.	Edward Crusselle	26 25
"	25.	W. P. Nicolson	16 50
"	28.	L. H. Jones (salary for 1904)	400 00
April	11.	Franklin Printing & Publishing Co	57 66
"	15.	Incidentals	63 50
"	18.	W. F. Westmoreland (acct. new members)	74 50
			$ 1,925 44
		To balance	582 88
			$ 2,508 32

Dr. Claude A. Smith presented the following resolution, and moved that it be referred to a committee of seven, with power to act.

This motion was unanimously carried.

WHEREAS, The first public protest against the evils of child labor was made by the members of our profession, certain physicians of Manchester, England, in the year 1784, as follows: After speaking of the "injury done to young persons through confinement and too long-continued labor," they said: "We deem this indulgence (of shorter hours) essential to the present health and future capacity for labor of those who are under the age of fourteen; for the active recreations of childhood and youth are necessary to the growth, the vigor and the right conformation of the human body." And

WHEREAS, It is a matter of common knowledge that the evils of child labor do exist in the manufacturing establishments of our own State; we, the members of the Georgia Medical Association, do put on record our opinion that the long-continued employment of children in the factories, under the age of fourteen, is injurious to health, and that this is especially the case with girls under that age.

The President appointed on the above the following committee: Claude A. Smith, Chairman; M. A. Clark, Frank M. Ridley, Samuel Benedict, J. D. Herrman, W. B. Tate, W. E. Adams.

Dr. R. R. Kime introduced the following resolution, which was adopted:

Resolved, That a committee of five (5) members be appointed to be known as Educational Committee, and serve for a term of three (3) years.

It shall be the duty of this Committee to consider educational matters throughout the State, and especially that of education of children; that they take up for study and investigation at once the following:

First. What are the defects in our present methods of education that affect the physical, mental and moral development of the children?

Second. When and how should the boys and girls be instructed as to the evil results of the social vices?

This Committee shall have power to act in these matters as in

their judgment they think best, but in the publication of any of their committee reports in the secular press no individual names shall appear.

They shall make reports of their investigations and suggestions annually to this society, and, when requested, to such other societies as may advance the cause of education.

The President appointed the following committee: R. R. Kime, Chairman; E. R. Carson, Savannah; Theo. Toepel, Atlanta; Alexander Mack, Decatur; Dunbar Roy, Atlanta.

The following, regarding the establishment of a State Registration Board for Nurses, was read:

Dr. W. P. Nicolson, President of the Medical Association of Georgia, Atlanta.

DEAR SIR: We, the undersigned graduate nurses of Atlanta, respectfully ask you to recommend to your Association the adoption of a resolution requesting the State Legislature to enact some law relative to establishing a State Registration Board for Nurses for the State of Georgia, such as adopted by New York, Maryland, North Carolina, etc. We feel that such steps are necessary for the protection of patients, physicians and ourselves.

Very respectfully,

ALGIE D. TYGART, Supt. Grady.
ANNIE T. PAINTER,
LILLIAN DUKE,
KATE STOW,
LEILA A. PARKER,
S. E. PEARSON,
ELIZABETH RHODES,
SUSAN HOSKINS,
ELIZABETH C. GURNER,
A. LAURA BUNTING,
ANNIE BRIDGES,
E. DRISKILL,
A. T. LOVE,
CONYERS PRITCHETT,
ALBERTA W. DOZIER,
ETHELYN B. WHATLEY,
NONA PREWITT,
CLARA WEEGAND,
LLEWELLYN WOOD,
LEILA C. HUNT,
KATHERINE ALTENDERFER,
MAMIE ASHFORD,
LUCY WEBB,
MOLLIE ROSENBERG,
ADA FINLEY,
MARY L. OWEN,
CLARA A. PIERPONT,
BESSIE MILLS,
FRANASE I. PATTON,
SUSIE CUNYERS,
A. C. MCLAIN,
M. E. MCCLINTON,
KATE LOW,
EMMA A. EHRHART,
ERNESTINE BRUMBY,
ANNA M. HOCKER,
FANNIE GROVES,
MATHILDE SPAURE,
MRS. THEODOSIA WORDELL,
BESSIE YOUNG.

Dr. Elder called attention to the fact that he had presented this matter at the meeting of the Association last year, and that it had been referred to the Committee on Medical Legislation, with instructions to report on same at this meeting. He therefore moved that this petition also be referred to them, with the request that they take them under consideration. Carried.

The reading of papers was resumed.

Dr. H. McHatton, of Macon, read a paper on "The Induction of Labor in Albuminuria."

Dr. A. P. Taylor, of Thomasville, presented a paper on "The Toxemia of Pregnancy."

Dr. L. C. Fischer, of Atlanta, read a paper entitled "The Prevention and Treatment of Puerperal Infection."

Dr. E. C. Davis, of Atlanta, read a paper on "Prompt Repair of Laceration of the Female Generative Organs after Labor."

These four papers were discussed by Drs. E. P. Bomar, J. W. Duncan, T. M. McIntosh, C. L. Williams, M. A. Clarke, R. R. Kime, and Drs. McHatton and Taylor (in closing).

Dr. T. E. Oertel, of Augusta, presented a paper on "Report of Cases of Tuberculosis Treated with Bacillus X (Maher)," which was discussed by Drs. Claude A. Smith, M. M. Saliba and Oertel (in closing).

Attention was called to the fact that the present hall was found to be inadequate to accomodate the unusually large attendance, and it was decided to accept the offer of Marist College of their lecture hall for the afternoon and evening sessions.

The President announced the following committee from the various counties in the State on the organization of county boards of health:

MEMBERS OF COMMITTEE APPOINTED BY THE PRESIDENT OF THE MEDICAL ASSOCIATION OF GEORGIA TO CO-OPERATE WITH CENTRAL COMMITTEE AS TO ORGANIZATION OF COUNTY BOARDS OF HEALTH.

COUNTY.	PHYSICIAN.	LOCAL ADDRESS.
Appling	James E. Overstreet	Baxley, Ga.
Baker		
Baldwin	Thomas M. Hall	Milledgeville, Ga.
Banks	O. P. Lockhart	Maysville, Ga.
Bartow	Dr. A. T. Calhoun	Cartersville, Ga.
Berrien	W. P. Lovvorn	Cecil, Ga.
Bibb	W. J. Little	Macon, Ga.
Brooks	Samuel S. Gaulden	Quitman, Ga.
Bryan	Wm. J. Williams	Pembroke, Ga.
Bulloch	A. L. R. Avant	Statesboro, Ga.
Burke	H. B. McMaster	Waynesboro, Ga.
Butts	J. L. Byron	Jackson, Ga.
Calhoun	C. J. Jenkins	Edison P.O., Ga.
Camden		
Campbell	T. B. Bullard	Palmetto, Ga.
Carroll	R. M. Lovvorn	Bowdon, Ga.
Catoosa		
Charlton		
Chatham	E. R. Corson	Savannah, Ga.
Chattahoochee	C. N. Howard, Jr	Cusseta, Ga.
Chattooga	W. J. Bryant	Summerville, Ga.
Cherokee	Jack N. Bates	Canton, Ga.
Clarke	Samuel Benedict	Athens, Ga.
Clay		
Clayton	W. B. Barton	Morrow, Ga.
Clinch		
Cobb	H. O. Reynolds	Marietta, Ga.
Coffee	S. L. McElroy	Willacoochee, Ga.
Columbia	Z. McD. Story.	Mistletoe, Ga.
Colquitt	C. A. Edwards	Doe Run, Ga.
Coweta	W. F. Culpepper	Senoia, Ga.
Crawford	J. L. Le Seur	Roberta, Ga.
Dade		
Dawson		
Decatur	Gordon Chason	Bainbridge, Ga.
DeKalb	Jos. Green	Decatur, Ga.
Dodge	J. D. Herrman	Eastman, Ga.

COUNTY.	PHYSICIAN.	LOCAL ADDRESS.
Dooly	T. J. McArthur	Cordele, Ga.
	W. E. Edwards	
	V. O. Harvard	
Dougherty	P. L Hillsman	Albany, Ga.
	W. W. Bacon	
	J. M. Burnett	
Douglas	J. L. Selman	Douglasville, Ga.
Early	W. B. Standifer	Blakely, Ga.
Effingham	B. P. Powers	Egypt, Ga.
Elbert	W. J. Matthews	Elberton, Ga.
Emanuel	L. P. Lane	Stillmore, Ga.
Fannin	J. M. Davis	Blue Ridge, Ga.
Fayette		
Floyd	T. R. Garlington	Rome, Ga.
Forsyth		
Franklin		
Fulton	Jas. B. Baird	Atlanta, Ga.
Gilmer	J. S. Tankersley	Ellijay, Ga.
Glascock		
Glynn	H. Burford	Brunswick, Ga.
Gordon	C. T. McClain	Calhoun, Ga.
Greene	J. H. Gheesling	Greensboro, Ga.
Gwinnett	Dr. Almand	Winder, Ga.
Habersham	Dr. Jeff Davis	Toccoa, Ga.
Hall	J. N. Downey	New Holland, Ga.
Hancock	Chas. S. Jernigan	Sparta, Ga.
Haralson		
Harris	W. B. Tucker	Chipley, Ga.
Hart	I. L. McCurry	Hartwell, Ga.
Heard		
Henry	C. L Tucker	McDonough, Ga.
Houston	O. G. Singleton	Fort Valley, Ga.
Irwin	Warren L. Story	Sycamore, Ga.
Jasper	W. M. Bullard	Monticello, Ga.
Jackson	L. G. Hardman	Commerce, Ga.
Jefferson	W. B. Holmes	Wadley, Ga.
Johnson	J. W. Brinson	Wrightsville, Ga.
Jones	John Hardeman	Haddock, Ga.
Laurens	J. L. Weddington	Dublin, Ga.
Lee	W. T. Simpson	Smithville, Ga.
Liberty	G. S. Roach	Johnson Station, Ga.
Lincoln	W. B. Crawford	Lincolnton, Ga.
Lowndes	C. T. Quinn	Naylor, Ga.
Lumpkin	H. C. Whelchel	Dahlonega, Ga.

COUNTY.	PHYSICIAN.	LOCAL ADDRESS.
Macon	C. H. Richardson	Montezuma, Ga.
Madison	S. B. Little	Colbert, Ga.
Marion	A. S. Boyett	Dranesville, Ga.
McDuffie	S. Gibson	Thomson, Ga.
McIntosh	F. S. Clark	Darien, Ga.
Meriwether	P. W. Fitts	Greenville, Ga.
Miller	E. B. Bush	Colquitt, Ga.
Milton		
Mitchell	W. S. Hill	Pelham, Ga.
Monroe	J. O. Elrod	Forsyth, Ga.
Montgomery	M. L. Currie	Ailey, Ga.
Morgan	W. E. Adams	Madison, Ga.
	R. W. Trotter	
Murray		
Muscogee	Jas. H. McDuffie	Columbus, Ga.
Newton	O. L. Holmes	Starrsville, Ga.
Oconee	S. A. Elder	High Shoals, Ga.
Oglethorpe	W. H. Reynolds	Lexington, Ga.
Paulding		
Pickens	W. B. Tate	Tate, Ga.
Pierce	John H. O'Quinn	Patterson, Ga,
Pike	R. A. Mallory	Concord, Ga.
Polk	J. A. Liddell	Cedartown, Ga.
Pulaski	A. A. Smith	Hawkinsville, Ga.
Putnam	J. D. Weaver	Eatonton, Ga.
Quitman		
Rabun		
Randolph	F. D. Patterson	Cuthbert, Ga.
Richmond	T. E. Oertel	Augusta, Ga.
Rockdale	John T. Gwinn	Conyers, Ga.
Schley	B. L. Bridges	Ellaville, Ga.
Screven	George M. Overstreet	Sylvania, Ga.
Spalding	M. F. Carson	Griffin, Ga.
Stewart	J. C Patterson	Lumpkin, Ga.
Sumter	Burr T. Wise	Plains, Ga.
Talbot	W. P. Leonard	Talbotton, Ga.
Taliaferro		
Tattnall	E. P. Bomar	Ohoopee, Ga.
Taylor	W. W. Edwards	Butler, Ga.
Telfair	W. H. Born	McRae, Ga.
Terrell	J. W. Patterson	Dawson, Ga.
Thomas	B. A. Daniels	Thomasville, Ga.
Towns	Geo. C. Erwin	Young Harris, Ga.
Troup	Frank M. Ridley	LaGrange, Ga.

COUNTY.	PHYSICIAN.	LOCAL ADDRESS.
Twiggs	Mark H. O. Daniels	Bullards, Ga.
Union		
Upson	A. H. Black	Thomaston, Ga.
Walker	R. H. Tatum	Pittsburg, Ga.
Walton	O. N. Pendergrass	Monroe, Ga.
Ware	R. P. Izlar	Waycross, Ga.
Warren	W. W. Pilcher	Warrenton, Ga.
Washington	J. R. Burdett	Tennille, Ga.
Wayne	J. G. Tuten	Jesup, Ga.
Webster	J. N. Kenyon	Weston, Ga.
White		
Whitfield		
Wilcox	A. H. Crawford	Abbeville, Ga.
Wilkes	A. W. Simpson	Washington, Ga.
Wilkinson	J. H. Duggan	Irwinton, Ga.
Worth	T. C. Jefford	Sylvester, Ga.

Dr. M. M. Saliba, of Savannah, read a paper on "The True Value of Drugs in the Treatment of Consumption."

Dr. W. B. Hardman, of Commerce, read a paper entitled "Medical and Surgical Hodge-Podge."

Dr. J. E. Sommerfield, of Atlanta, read a paper on "The Treatment of Pneumonia."

On motion the meeting adjourned until 2.30, to meet at the Marist College hall.

SECOND DAY—AFTERNOON SESSION.

The Association met at 3 p.m., and was called to order by the President, Dr. Nicolson.

Dr. M. McH. Hull, of Atlanta, read a paper on "Lobar Pneumonia in Children," which was discussed by Dr. J. W. Duncan.

Dr. E. B. Block, of Atlanta, read a paper on "Albuminuria," which was discussed by Dr. L. H. Jones.

Dr. J. B. Morgan, of Augusta, presented a paper on "The Suture as a Factor in Primary Union," which was discussed by Dr. F. W. McRae.

Dr. R. R. Kime, of Atlanta, read a paper entitled "Appendicitis, Medical and Surgical," which was discussed by Drs. J. B. Morgan, W. F. Westmoreland, E. C. Cartledge, Curtis, J. L. Selman, J. W. Duncan, R. R. Kime (in closing).

Dr. W. S. Elkin, of Atlanta, presented a paper on "Some Remarks on Results of Radical Operations for Hernia," which was discussed by Dr. J. B. Morgan.

Dr. W. D. Travis, of Covington, read a paper on "Report of Abscess of the Lung; Operation with Recovery."

Dr. Geo. H. Noble, of Atlanta, read a paper on "Surgical Treatment of Rectocele, also Exhibition of Pathological Specimen of Enterolith with Spontaneous Anastomosis of Intestines."

The Association adjourned until 8.30 p.m.

SECOND DAY—EVENING SESSION.

The meeting was called to order at 8.30 p.m. by the President, Dr. W. P. Nicolson.

The President announced that this evening had been set aside to consider the report of the Committee on Reorganization, and he then called for the report.

Dr. F. W. McRae, as Chairman of the Committee on Reorganization, then read the report as presented on the first day, recommending the adoption of the new Constitution as presented by the committee.

It was generally understood by the members of the Association that there was considerable opposition to the adoption of a new Constitution, and the President announced that in order to facilitate matters so that the discussion of the subject might not be prolonged indefinitely, it had been agreed between the Committee and the leader of the opposition, Dr. Chas. Hicks, that the Committee be represented in the discussion by Dr. J. C. Olm-

sted and Dr. W. F. Westmoreland, and that Dr. J. B. Morgan and Dr. Chas. Hicks, of the opposition, be allowed as much time as consumed by the representatives of the Committee.

The President then called upon Dr. Olmsted, who spoke in favor of the adoption of the Constitution as recommended by the Committee, and he was followed by Dr. Westmoreland.

Dr. Morgan then spoke in opposition to the adoption of the new Constitution, and he was followed at length by Dr. Hicks, who was in turn followed by Dr. T. M. McIntosh.

Considerable feeling was shown in the discussion, which became more or less general.

The vote upon the report of the committee was finally called for, and the "ayes" seemed to have it. There was a call for the "ayes" and "noes," and the vote stood: "Ayes" 134 and "noes" 111.

The President announced that the majority vote adopted the report of the committee, and therefore the new Constitution was adopted by the Association.

The point of order was raised that a two-thirds vote was necessary to "change" the Constitution.

The President ruled that this point was not applicable; that the vote was not to "change" the Constitution, but that it was a complete reorganization and adoption of an entirely new Constitution, and quoted from Robert's Rules of Order, which was the parliamentary guide of the Association.

This was followed by considerable discussion on the ruling of the President.

Finally, Dr. Westmoreland moved that a committee of four, two from each side, be appointed to consult with some well-known parliamentarian in regard to the point

in question, and that they report back to the Association the next morning, and that their report be final.

This was unanimously carried.

The meeting then adjourned (1.05 a.m.) until Friday morning at nine o'clock.

THIRD DAY—MORNING SESSION.

The Association reassembled at the ballroom of the Kimball House at nine o'clock, and was called to order by the President, Dr. Nicolson.

On motion, the reading of the minutes was dispensed with.

Dr. R. R. Kime stated that he had been appointed by the Tri-State Medical Society as a committee to request the Medical Association of Georgia to appoint a committee to confer with like committees from the State Associations of Alabama, South Carolina, Florida and Tennessee, with a view to organizing an association embracing these States.

Dr. Kime then read the following:

Resolved, That a committee of three be appointed as delegates to the next meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee, to discuss the subject of organizing a society embracing Alabama, Florida, Georgia, Tennessee, North and South Carolina, in place of the Tri-State Society now existing.

This was adopted, and the President appointed on that committee: Dr. R. R. Kime, Dr. Michael Hoke, Dr. Howard Williams.

The reading of papers was then taken up.

Dr. Michael Hoke, of Atlanta, read a paper on "Conditions Found in Knee-joints Disabled by Chronic Rheumatism, and their Treatment."

Dr. J. McF. Gaston, of Atlanta, presented a paper on "Nephrectomy for Gun-shot Wound of the Kidney: Report of a Case."

Dr. Ross P. Cox, of Rome, read a paper on "Some Points out of my Own Experience in Refraction and the Fitting of Glasses."

Dr. E. C. Thrash, as chairman, presented the following report of the Committee on Organization of County Boards of Health, which was adopted:

Resolved, That this committee be continued, and that they use every effort to get the profession of their counties to influence the legislators of these counties to enact suitable laws for the establishment of county boards of health.

Resolved, That Dr. Westmoreland be requested to furnish each member of this committee with copies of proposed laws establishing county boards of health, that they may use them with the profession and officials in his county to secure such legislation.

(Signed) E. C. THRASH, Chairman.
M. A. CLARK, Secretary.

Dr. A. W. Calhoun, of Atlanta, read a paper entitled "Is Bilateral Operation for Cataract ever Justifiable; if not, How Soon After Operation on the First Eye is it Safe to Extract the Second Cataract?"

Dr. A. W. Stirling, of Atlanta, presented a paper on "Recurrent Ocular Paralysis with Pain."

Dr. C. H. Cunningham, of Macon, read a paper on "Complications of Chronic Suppuration of the Middle Ear, with Special Reference to Thrombosis of the Lateral Sinus; its Symptoms and Treatment."

These three papers were discussed by Drs. Calhoun, J. L. Hiers, Cox, Stirling, W. E. Campbell.

Dr. W. L. Champion, of Atlanta, read a paper on "Prostatic Massage."

The following resolution was introduced and adopted:

Resolved, That it is the sense of this Association that the growth of its membership has become so great, and the number of members attending the annual meetings so large, that the entertainment of the body is too great a burden for the local profession of the larger cities to comfortably bear, and the hours given to social entertain-

ment is at a heavy loss to the scientific transactions, that this Association express its disapproval of the giving of these entertainments, and the time usually given to them be devoted to the scientific work of the Association.

Resolved, further, That any entertainment which may be given by the Association be confined to the evening of the first day, and that this feature of the proceedings be limited to a smoker or supper, admission to which to be by the payment of an admission fee by the individual member going to such entertainment.

The committee appointed at the meeting the night before presented the following report, which was unanimously adopted:

Mr. President and Members of the Medical Association of Georgia.

GENTLEMEN: Your Committee, nominated and unanimously elected by the Association to consider and decide on the question of the correctness of the rulings of the Chair on the adoption of the new Constitution voted on at a special meeting last evening held for that purpose, beg leave to report: That in our opinion the ruling was correct and in harmony with the requirements of our code and of parliamentary usage.

J. B. MORGAN,
W. F. WESTMORELAND,
FLOYD W. MCRAE.

CHAS. HICKS, Dissenting.

Dr. Hicks then rose, and stated that as he could not agree with the report of the majority of the committee, and feeling that perhaps he might be an element of discord in the Association, he tendered his resignation as a member of the Association.

The members of the Association refused to accept the resignation, and there were many expressions of good will, urging Dr. Hicks not to insist upon resigning.

The election of officers was next taken up.

Dr. J. L. Heirs moved that the by-laws be suspended, and that the eleven Councilors be elected upon nomination in open meeting by each respective district. Carried.

The election resulted as follows:

President—Dr. W. Z. Holliday, Augusta.

First Vice-President—Dr. W. B. Hardman, Commerce.

Second Vice-President—Dr. R. P. Izlar, Waycross.

Secretary and Treasurer—Dr. Louis H. Jones, Atlanta.

Councilor, First district—Dr. J. S. Howkins, Savannah.

Councilor, Second district—Dr. W. L. Davis, Albany.

Councilor, Third district—Dr. R. E. L. Barnum, Richland.

Councilor, Fourth district—Dr. W. L. Fitts, Carrollton.

Councilor, Fifth district—Dr. E. C. Davis, Atlanta.

Councilor, Sixth district—Dr. M. A. Clark, Macon.

Councilor, Seventh district—Dr. A. T. Calhoun, Cartersville.

Councilor, Eighth district—Dr. S. C. Benedict, Athens.

Councilor, Ninth district—Dr. W. B. Hardman, Commerce.

Councilor, Tenth district—Dr. W. W. Pilcher, Warrenton.

Councilor, Eleventh district—Dr. J. D. Herrman, Eastman.

The salary of the Secretary-Treasurer was fixed at six hundred dollars per annum.

Dr. J. B. Morgan and Dr. H. F. Harris were elected delegates to the American Medical Association.

Augusta was selected as the next place of meeting.

Dr. Howard J. Williams introduced the following:

Resolved, That the thanks of this Association be extended to Dr. Nicolson for the excellent and able manner in which he has presided over the sessions of this body.

That we also extend our thanks to the physicians of Atlanta, to authorities of Marist College, to the management of the Kimball, the transportation companies, etc., for the many favors shown us.

This was unanimously carried.

On motion, the meeting adjourned to meet at 3.30 p.m.

THIRD DAY—AFTERNOON SESSION.

The meeting was called to order by the President, Dr. Holliday.

The President appointed Dr. R. P. Izlar and Dr. M. A. Clark to serve on the Board of Censors.

The reading of papers was resumed.

Dr. F. G. Hodgson, of Atlanta, read a paper on "The Use of Rubber Bag Cervical Dilators in Obstetrics."

Dr. R. W. Hynds of Atlanta, read a paper on "The Origin of Tuberculosis in Children."

Dr. W. B. Hardman presented his resignation as First Vice-President of the Association, as he stated it was hardly proper for him to hold two offices at the same time, and that he resigned the vice-presidency as he thought he could serve the Association better as Councilor.

Dr. Hardman insisting, his resignation was accepted, and Dr. Izlar succeeded him as First Vice-President, and Dr. C. T. Nolan, of Marietta, was elected Second Vice-President of the Association.

Dr. St. J. B. Graham, of Savannah, read a paper on "Sprue."

Dr. Archibald Smith, of Atlanta, presented a paper on "Etiology and Prevention of Perineal Lacerations, with Special Reference to the Shoulders."

Dr. Oertel stated that as the Committee on Tuberculosis had made a report, and that the work of the committee would be greatly facilitated by having 500 copies of this report, therefore he requested authority to secure 500 copies.

This was carried.

On motion, the Association adjourned to meet in Augusta, Ga., on the third Wednesday in April, 1906.

THE DOCTOR AND THE PUBLIC SCHOOL.

By THEODORE TOEPEL, M.D., Atlanta.

The purpose of this paper is mainly to call to the physician's attention the child and its environment during its school life from six to fourteen years. Though not every physician is a politician, yet his professional standing carries sufficient weight to influence public opinion. A great amount of good would result if doctors in general would interest themselves more in the child at school. I am sure they are just as capable of filling positions on boards of education as men of other professions, especially when one considers that in school matters the prime aim to be promoted is the child's physical and mental welfare.

If we take the child at six years of age, when he first enters school, and note the change of conditions which take place, we are astonished at the physical and mental changes occurring during this first year at school. A child is removed from the home surroundings, where he was accustomed to be natural in action and speech, where the little body had a chance to grow, where the mind could develop at will, and now this abrupt change. This child of free play is now crowded into a room with fifty-nine others. He must learn to sit still in his desk, a limited space of two or three feet, and can move by command only, and only talk when he is asked. Is it not evident to every rational thinking physician that this change

should be carefully and gradually made? Would it not be better to take these little folks at six, and put them into a large room devoid of desks, where there is better opportunity for free exercise? The establishment of kindergartens with their preparatory course for the regular school work should be more universal in the city schools of the South. The expense of equipping and maintaining these kindergartens is small, when measured by the great amount of good derived from them.

The curriculum, as it is now made up, is very heavy for grammar-school children, and is very frequently the cause of physical retardation and nervous breakdown. Not only does the pupil suffer, but the teacher very seldom escapes the evil results of overwrought nerves in the attempt to accomplish all the work the curriculum calls for. The cry of alarm should be sounded by the whole medical world in opposition to this grinding system. Wisely-thinking pedagogues have shown the way of ridding the curriculum of all that is only theoretical, and not practical and useful, and have pointed out what should be taught our school-children, and they have chosen those things which eventually are conducive to the betterment of the people physically, mentally and morally. These men, true educators as it were, should have the loyal support of the physician, for he is the one man who sees the results of wise or unwise education, being the confidential counselor in many families.

I take for granted that we are dealing with children of families where they were properly cared for. We will find that, before the child was sent to school, he received his breakfast at eight o'clock, a light lunch at ten, and a warm dinner at twelve, not later than one o'clock, and now the change after he has entered school. It is customary in the South to have one long session. That

means the children must report at school at 8.15 a. m., and are dismissed at 2 p.m., with one half hour recess. This equals five hours spent in the school-room. The child now has breakfast at seven o'clock, he sometimes takes a cold lunch with him, which is eaten at eleven o'clock, leaves school at two in the afternoon, and, if he is fortunate in having a careful mother, he receives a little warmed-up food at three o'clock, otherwise waits for a warm meal at supper-time. It is evident that the physical and mental development of children, fed in this manner, can not be normal. It is convincing that the results of irregular feeding during three-fourths of the period of growth and development will manifest themselves sooner or later in some form of disease. Should not this question of proper feeding receive the attention of the physician? Would it not be better for pupils and teachers to have a warm meal at twelve o'clock, and at least an hour and a half for rest and recreation between sessions?

Unfavorable physical conditions are prone to contagious disease, and the greatest care should be exercised not to expose school-children to such on account of their susceptibility. Realizing the importance of this, many authorities have appointed regular visiting school physicians, whose duty it is to visit the schools daily, and examine all children, whom the teacher has sent to his office, in the school, suspected of having any contagious disease. In New York an inspector must make his visits to the school assigned to him before 10 a. m. He first examines the children isolated by the principal, and also the children who have been absent from school for a few days. Once a week he makes a routine inspection, consisting of a class-to-class examination of each child present. The children march by the inspector, pull down

their own eyelids and open their mouths wide. Any one suspected of having any trouble is ordered to the inspector's office for a more thorough examination. By this method many unreported contagious diseases have been found. Defects of sight and hearing are systematically sought for once a year among all pupils. We know that the way in which to prevent disease is to teach the people the primary cause of it, and how to avoid contact with the causative agent. In the public-schools the children should be taught more of the practical things that will be of use later in life, and less of the useless things, which they forget as soon as they leave school. Half an hour a week during the child's whole school period devoted to a good common-sense talk on personal hygiene is of greater benefit to a child than all the memorizing of physiology as it is at present taught. Instead of putting literature into the hands of children on this subject, facts should be put into their heads.

The conclusions drawn from physiological investigations made in Europe and America into the distortion of the body, caused by the demands of school life, are startling in the extreme. Every condition should be eliminated to prevent the acquiring of physical defects in school, as well as to prevent the accentuation of those defects which the child may have had before entering school. Improper chairs and desks, not conforming to the size of the body, must not be allowed in the room. I have seen children varying in height twenty-two inches seated at desks and in seats exactly the same size.

A few words will be appropriate in connection with this paper as to the room and schoolhouse, where the child spends five hours daily for eight years. I will picture to you a standard school-room, as now required by many of the larger city school systems, and, if any of the phy-

sicians present have received their primary instruction in a place with similar advantages, they are fortunate. The school-room should be the unit to be considered first in planning a school building; it should not be a building cut up into school-rooms. A school-room must be so planned as to give to the pupils who are to occupy it what the laws of health demand. A standard school-room is thirty feet long, twenty-five feet wide, and thirteen feet high. Of the primary grades forty-eight pupils are seated in a room of this size, each pupil having fifteen square feet of floor space and a little more than two hundred cubic feet of air space. In the grammar grades (fifth, sixth, seventh and eighth grades) forty pupils occupy a room of the same dimensions. Here every pupil has 18¾ square feet of floor space and 243¾ cubic feet of air space. The amount of glass surface to light the room well would be one-fourth of the floor space of the room, or 187 square feet, and there is unanimity of opinion that the light should enter from the left. The color of the walls and ceilings should be of a greenish-gray tint; the window-shades should be of the same color, but somewhat darker. Properly sloped desks, chairs with backs, both having some mechanical contrivance which will admit of their being raised and lowered to accommodate the difference in size in pupils and rapidity in growth, should be in every room. They should be placed in such a manner that the aisles run the long way in the room. Every child should have thirty cubic feet of fresh air every minute at a temperature of 70 degrees F. The sanitary conditions of the school-building should be the best that money can afford. There should be well-lighted closets, with the best plumbing. The floors in these places should be of hard asphalt. Special care should be exercised in regard to pure drinking water; the use of indi-

vidual cups should be encouraged. Besides the daily cleaning of the schoolhouse, the floors should be scrubbed twice a year; the walls and woodwork should be wiped and painted annually. Desks and seats are accumulators of dirt. They should be thoroughly cleaned with kerosene during vacation. Some of the progressive schoolboards of this country have instituted school baths like those of many European schools, the object being to teach cleanliness and physical exercise. The school-buildings should be constructed of the best materials, put together in the most substantial way, and with the best workmanship available. They should be located most convenient in distance for the greatest number of pupils. They should be away from noise and polluted air. The site chosen should be elevated and well drained. The playgrounds should be on the sunny sides, and they should be covered with natural gravel.

The aim of education is to develop the child physically, mentally and morally, to make a worthy member of society and a patriotic citizen. The child's mental education has been well taken care of, and it is time that a vigorous crusade be now made to do justice to the physical child. Owing to progress in science we have come to appreciate more generally the truth of the saying: "*Mens sana in corpore sano*" (a sound mind in a sound body). It is time for the physician to interest himself in the great problem of a healthy education. The physician who interests himself in school matters is better qualified than many others to judge wisely on matters pertaining to school, and those conditions which undermine physical development. With his knowledge of the human body, and the amount of work which each organ is able to perform, he is able to call atention to the needed periods of rest between studies; he can make good suggestions as to

the improvement of hygienic conditions of school-rooms, building, etc., thereby removing indirectly many causes of disease, and by practicing these preventive measures he can make himself invaluable to the community. Let the doctors of this body unite in the endeavor to improve the environment of the child at school, thereby assisting in rearing a stronger generation of men and women, who are better able to perform conscientiously the many duties of an upright, noble life.

DISCUSSION ON DR. TOEPEL'S PAPER.

Dr. J. McF. Gaston, Atlanta: This paper is of great value to the profession at large, and I want to congratulate Dr. Toepel on his paper. It is a matter of great interest to the people at large that the profession should take notice of what is done in the schoolroom, and as to how the schools are constructed. In New York last winter I had the pleasure of seeing some of the best schools, and I took the opportunity to go to all the schools that I could conveniently reach, having authority from the Board of Education to do so. I took part in the discussion of school inspection, and found that in New York great attention had been paid to this subject. In Atlanta we have an inspection of schools, and it is more important than ever that we have this subject brought to our attention. I would like to see more discussion of this subject. Careful attention should be paid to the light in the schoolroom. It has been found that the light coming from the left is a great help to the eyesight. Also, the system of ventilation will have to undergo an improvement, so that there will be a constant change of the air. These points are all worthy of serious consideration.

Dr. J. W. Duncan, Atlanta: I have been very much interested in this paper, and think it is an important one.

The ventilation of the schoolroom should be carefully looked after. I like to have the room well ventilated.

Dr. R. R. Kime, Atlanta: This is too important a paper to pass by without discussion by this Association. No paper will come before this Association that is more important. The future citizens are the children of the present, and the way they are developing now will be the condition of the next generation. Then it is important that a profession that understands this development should make their influence felt. The physicians of Georgia are in position to lend an influence that will be of great benefit to the development of the children of this State. The point mentioned in the paper, that by sending the children to school at 8.15 a.m. and keeping them there until 2 p. m., makes it impossible for them to do good work. It is impossible for any man here to go to school and do the work year in and year out without telling on his health. These are questions which we should decide as a profession. A great many schoolchildren are crowded into a room like sheep, without regard to their mental or physical capacity. It is a matter of importance.

Another thing, it is a matter of importance for the teachers to occupy their time and train themselves for this work as they should do. Under the present arrangement, the mental strain is such that they can not be in condition to handle them properly.

The way we are drifting along we will have nervous wrecks and a breaking down when they should be strong and healthy. Before this meeting closes, I desire to introduce a resolution to appoint a committee to take charge of the subject in Georgia and report from year to year.

BROMIDE POISONING.

By DR. C. C. STOCKARD, Atlanta.

During the past few years I have seen a dozen or more cases of bromide poisoning, some of them resulting from a lack of knowledge on the part of the physicians of the physiological effects and toxicology of the drug, and others showing that the laity look upon bromides as harmless remedies. The number of cases seen by me, together with the failure on the part of physicians to recognize the condition, and the real seriousness of it, have led me to the conclusion that a paper calling the attention of the profession to the subject, and pointing out the symptoms by which bromidism may be readily recognized, would be of real value. Hence this paper.

Some of the cases have resulted from the use of bromides in efforts to get release from the morphia habit. About six years ago there was reported in the journals a case in which, by some mistake, a woman took three ounces, or more, of sodium bromide within about forty-eight hours. A deep sleep of four or five days' duration followed; and, after coming out of this it was found that she did not feel the need of morphine, to the use of which she had long been addicted. As a result of reporting the case a good many have been treated in this way, and, I doubt not, a number of deaths have resulted. But outside of these cases, there seem to be a good many occurring in the practice of physicians, either from idiosyncrasy of the patient, or taking the drug too freely when

the physician has given directions in a rather loose way; and still others have taken it of their own accord, thinking there is no harm in bromides.

The cases coming to me from other physicians were not at all recognized by them as cases of bromide poisoning. In fact, the bromide was generally being pushed, to control the symptoms thought to be delirium tremens, or some other like condition. When bromide is taken in sufficient quantity within two or three days' time to produce sleep lasting several days, the patient first becomes drowsy, tremulous and weak, frequently dropping things from the hands, and walking with an unsteady gait, and dragging of the feet. The talk is drawling, the tongue seeming to be thick and inactive; the eyes droop and the lids are generally gummed. This condition is followed by a deep sleep, lasting from a day or two, to longer, according to the amount of the drug taken. In one case, in which the patient took the drug several days, the last dose being nearly an ounce, a profound sleep continued for two weeks.

During the sleep the patient lies usually very quiet, rarely turning even. The breathing and pulse are regular, slow and full. The bladder and bowels are emptied involuntarily, and without at all arousing the patient. The breath has a peculiarly foul and metallic odor, which is usually so characteristic of the condition that it may be at once recognized by it. The tongue is covered with a heavy, white, slimy coating, which gives away later to a red, glazed condition; this not occurring, however, for a week, or it may be two; and by the time it does occur, the peculiar odor of breath has disappeared. Coming out of the sleep, there is the same slow talking, with dragging of the limbs and letting fall of articles from the hands, as described above, and, with it, hallucinations,

usually of persecution. The patient imagines he is being hunted, and is going to be killed or something of the kind. He weeps, saying he has done no one harm, and, though he seems harmless, at times he is ready to fight, and, unless properly guarded, is liable to do harm. This state resembles very much what is frequently seen as the result of alcoholism, that is, the mental condition, but the breath, the thick tongue, and the dragging voice and walk, readily distinguish the two.

When bromide is continued some time in rather large doses, but smaller than above described, the condition that follows the sleep is reached without going through it, the patient simply sleeping more than usual and developing a foul tongue, with the breath, muscular weakness, etc., above described, together with the mental disturbances. I have seen several cases of this kind occurring in patients for whom bromide had been prescribed with some latitude as to interval between doses. With one exception, all the cases I have seen recovered, in from a day or two to three weeks, but one case, that had been heavily dosed for several weeks and had developed the characteristic symptoms, was dosed still more freely while being brought to the city, in order to keep him quiet, went, within a few hours after entering the sanitorium, into a coma and died within less than forty-eight hours.

While to call attention to the seriousness of the too free use of bromides is the prime object of this paper, it may be well to say that a knowledge of the effect will enable the physician often to produce a most desirable sedation, just coming short of serious toxic effect. To accomplish this about 1½ to 2 ounces should be given within, say, seventy-two hours. Taken thus, the effect will not show itself but slightly before the entire amount

has been given, or, possibly, even the next day. In persons who are sea, or car sick, there is nothing known to me which approaches it in efficacy; and there are other conditions in which to produce such a decided sedation of several days' duration would be of immense benefit. I think the above amounts can be safely given; and I have never seen the mental upset follow this dosing, but it is about as far as one can go with impunity.

If I shall have succeeded in arresting the attention of some, and directing it to the symptoms produced by the too free use of bromides, and the danger of such use, the object of this paper shall have been attained.

REPORT OF A CASE OF MYASTHENIA GRAVIS.

By J. CHESTON KING, M.D., Atlanta.

In presenting a detailed report of a case of this unusual type of disease, which has been under my observation from July, 1904, to January, 1905, I am conscious of the fact that I am dealing with a subject that, as yet, is very narrow in the range of discussion; its pathology yet to be known; some contending that it is a change in the muscles; others in the nervous system.

All information afforded us to-day in the investigation of this disease by the microscope is of a negative character. No structural change whatever can be found. And the human body is the most complex mass of matter in the known world; its composition surpasses the highest powers of chemical analysis; its structures are but dimly seen even with the most perfect microscope. Through circulating blood and a nervous system, every part is within swift communication with all the rest. And it is in this body with all its complexities that the pathologist must study that which is in disorder and unsettled, and hence I report a case that will be food for thought and research. I wish to preface said report by a declaration of full belief in the trophic influence of nerve force.

Any alteration in the nervous force of the anatomy can alter its methods of nutrition without altering the condition of the blood-vessels.

Name, Mary Anderson; aged twenty-eight; occupation, seamstress; admitted November 30, 1903; ill, one

year; complaint, difficulty in walking and speaking, weakness of arms; duration, one year. Family history: Parents are both alive and healthy; two brothers and sisters alive and strong; the patient is the eldest of the family; no family history of nervous or malignant disease. Previous history: Was strong and healthy until onset of present illness. Measles and chickenpox in infancy; influenza three years ago—severe—two weeks in bed; has been working as a seamstress since she was fifteen years of age; twelve hours a day at work; menstruation started at thirteen years; has been regular—not excessive; has not been anemic. Present illness: Following the attack of influenza two years ago, she began to find her throat uncomfortable at night, and her tongue as though it was too large for her mouth. Her voice would also tire towards evening, especially when she has talked much, and would then become husky and indistinct. But these troubles were so slight that for the first year she paid no attention to them—but from them has developed her present illness.

Directly after the influenza, she had lost her voice for about a fortnight; during this time that her voice was quite silent she could not be heard, but she could articulate properly. She regained her voice rather suddenly. She has gradually got worse since the time. Her mother says that when she gets tired she talks through her nose. Twelve months ago she lost her voice for the second time for about a week, and a third time three months ago.

A year ago she was not able to blow up a toy balloon; she could not keep her lips tight enough, and the air came through her nose.

It has been almost a rule for her to have bad choking attacks at supper every evening for the past year when at home, but rarely on other occasions.

No change in the face has been pointed out to her, but during a year she has found that she can take breakfast fairly easily, and with hardly any difficulty, but the trouble in swallowing increases as the day grows old.

She has never noticed any difficulty in chewing, nor does she become tired in doing so, but the food sticks between her cheeks and teeth.

About last September, too, her voice began to get much weaker, that she tires very easily in speaking, and when she had continued doing so for some time, her voice would almost become unintelligible. In the same way she has been able to speak quite naturally each morning, but finds difficulty towards each evening.

She sang with a choir until about two years ago, then had to give this up, as she would become so tired during the singing of the first verse, she could not get any further, only with great effort. These various symptoms only began to trouble her about twelve months ago, then she began to experience some difficulty in swallowing, which slowly increased.

At first the difficulty was only with solids; a mouthful of bread or meat would slip back into her throat and nearly choke her, and she would then have difficulty in drawing her breath. Later liquids taken began to regurgitate through her nose. She finds no difficulty in taking sips, but can't drink fast. Her eyes have been always full of water, "and tears have run over her cheeks," when she became tired or was exposed to wind. Was formerly able to whistle, but has not been able to do so for several months.

For about two weeks, two months ago, she saw everything double, and the left eyelid drooped. There has not been any recurrence of the diplopia.

She does not complain of any symptoms in her arms,

but says her left wrist is not so strong as it used to be, and gets tired when she has used this hand for long. When tired the left hand also drops, and she is unable to hand it back. Frequently, too, she is unable to fully extend the left forefinger. She has never found the upper extremity weak. She can hold up a book to read, and can see quite well until the left wrist gets tired.

Only on one occasion two months ago noticed any weakness of her legs, and this of the left, and only lasted one day. During the summer she walked eight miles without feeling very tired. There is nothing peculiar in her gait.

After any hard housework, as scrubbing, etc., feels very tired "all over" and needs a rest.

These symptoms have been very much worse at her menstrual periods. Her morning state then corresponds to her evening at other times. During the days of the flow, she can hardly speak; has then to lie up in bed.

She has not slept so well during the periods of this illness as she previously did. She does not get out of breath very easily.

Present condition: The patient is a small, but fairly well-developed girl; she is rather pale, the mucous membranes being especially so; the skin of the body and limbs is distinctly abnormal, that of the former is very rough, dry and hard, but on the limbs and face is for the most part dry and scaly, thin and shiny, and almost like tissue paper to the touch. Some desquamation on forehead and on legs and fingers. There is no hair except on pubis and axilla, and even there it is sparse.

The hair of her scalp is rather thin and coarse, and she says it has recently become more so.

Says: That her arms and legs have always been bare of hair; her skin rough as long as she can remember.

Though the skin is at present dry, she says, she often sweats profusely.

She does not sleep as well as she used to; her appetite is not very good; menstruation every six weeks, not too profusely, but painful.

Heart—not enlarged—apex beat not displaced; first mitral sound, soft, indistinct and prolonged; no murmurs audible. Pulse soft.

Lung: No cough or expectoration; no abnormal physical sounds—no sternal dullness.

Abdomen: No history of digestive troubles. Visceral organs normal to external examination. Urine 1015, acid, no albumin.

Mentally: Clear and intelligent, but rather apathetic.

Special senses: Smell, good; taste, good; hearing, good; sight, R. V. 6-6; L. V. 6-6; visual feel normal; A. B. natural. Both fundi are pale.

Cranial nerves: *Ptosis* on each side, right and left, which does not fully disappear on looking up. It increased each evening. No definite symptoms can now be brought out on examination, but the edges of any object held to the patient's right appear blurred, and the right eye does not move fully out on looking to the right. The pupils are large, but react well to light and accommodation.

Sensory functions normal. The temporals and masseters contract fairly strongly and are of fair size, but tire rapidly. In lateral movements the lower jaw is easily tired and when requested to rapidly open and shut her mouth in quick succession, can only do so slowly and with effort after about the twentieth time, and gives up as she is too tired after fifty-fifth time. Then can no longer clench her teeth tightly together.

Her face is smooth and expressionless, with scarcely

a furrow present, and narrow palpebral fissures. All movements of both the upper and lower division are very weak. She can not bring her lids quite together right and left. Her smile is distinctly "pathetic," the mouth being elongated and its angle not sufficiently elevated. She also finds it difficult to wrinkle her forehead or to frown, and is unable to blow her cheeks out tense. She can pout her lips fairly well, but can't whistle properly—the lips not coming sufficiently together for action. The facial weakness is as noticeable in expressional as in voluntary movement.

The palate moves straight, but is not very fully elevated in phonation. Each morning she can swallow fairly well, but finds difficulty and frequently chokes when taking food later in the day.

In the first place, solids get between her cheeks and teeth, and she does not find it easy to again bring them within the latter, and then they slip back too easily into her pharynx.

Liquids frequently regurgitate through her nose and tend to choke her. Each morning her voice is distinct and practically natural, but towards evening, or after she has talked for some time, it becomes husky, somewhat nasal and generally indistinct; and the more so the more she talks. The gutteral letters after the greatest difficulty; the phonation remains fairly good.

Her tongue is protruded straight and not wasted.

Muscular senses: The muscles of the limbs and the trunk are fairly large in proportion to her size; there is no evidence of any wasting of them, local or general. Their tone is also good. No rigidity or any abnormal degree of placidity of the limbs.

Neck: Head is held erect, and she has not noticed any difficulty in doing so, even when tired. It is easily rotated, and moved from side to side.

The strength of all movements of both limbs was decidedly poor in comparison to the bulk of the muscles. When she was examined (towards evening) extension of the left hand being especially so. When at all tired she has considerable difficulty, or may be unable, to fully extend the left forefinger. When the limbs are extended horizontally in front of her, the left finger begins to flex after about fifteen seconds; later the left elbow to flex.

Then both limbs begin to slowly drop and finally fall to the bed, after about thirty seconds, as she then says that she becomes so tired that she can not hold them up any longer. Each movement becomes very weak, and finally impossible to *exhaustion* of the muscles after it has been repeated in rapid succession for a considerable time. This full flexion and extension of the left fingers become slow and laborious after about twenty-five movements, or about twenty seconds, and full extension no longer possible after fifty-three, or about forty seconds. First, the movement becomes slow and weak, and only possible with effort, and this increases until the movement is finally lost. Flexion of the left arm against gravity is greatly exhausted after about forty attempts. The so temporarily paralyzed muscles recover quickly. When at all tired she finds it very difficult to continue any action beyond a certain time. All movements are much stronger and less easily exhausted in the day than towards evening.

There is no tremor in the horizontally extended arms; of all movements excellent.

Trunk: No definite weakness of the abdominal or spinal muscles; respiration is almost entirely thoracic, regular and fairly deep. She does not complain of getting out of breath too easily. Cough very feeble and becomes exhausted after four or six attempts.

Lower extremity: All movements of the limbs are fairly strong when first tested, but tire easily, but not so easily exhausted as those of the upper extremity. Raising the left limbs stiffly from the bed gets tired after twenty-five times, but not exhausted till about sixty attempts.

No tremor or involuntary movements in these limbs, and co-ordination is natural.

Gait: Quite natural, and does not seem to tire easily.

Subjective: No numbness or tingling; complains towards evening of a general tired feeling.

Objective: No change of any form of sensation.

Reflexes: Biceps 20, not easily exhausted by repeated taps; triceps, 20; K. S., brisk, reduced after 70 taps rapidly repeated, but lost after 150 in patellar tendon; A. J., no clonus; epigastric, normal; abdominal, normal; plantar, flexor.

Sphincters: No affection.

Treatment: Seemed to avail little. I gave 1-30 gr. strychnine, massage, and the interrupted current of galvanism.

A REPORT OF SOME CASES FROM THE SURGICAL CLINIC OF THE ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS.

By J. L. CAMPBELL, M.D., Atlanta.

In reporting these cases it is not my intention to give anything new or rare, or to report any work out of the usual line, but to give you an idea of the work done at the college clinics. The results obtained are uniformly good, as far as can be expected with the class of cases we have. The wounds heal as readily as in the modern sanatoriums and hospitals, and pus in a clean case is almost unknown.

Of course, I do not mean to say that the same class of cases can be operated on at a college and done as successfully as at a well-equipped hospital, although appendicitis, abdominal tumors, and, in fact, almost any operation that can be performed anywhere has been done successfully at the college; the more perfect the surroundings, however, the better the chance of recovery becomes.

The nursing in the clinic cases is generally done by a relative or friend of the patient, and is of the most rudimentary kind.

The dressings are prepared by the students who may have been in the dissecting-room less than an hour before. The pledgets of cotton used for sponges are prepared and sterilized the day before using. The vessels and pans are also sterilized by steam. We are careful to cleanse our hands thoroughly, and to see that the students assisting

in the operation do the same. No attempt is made to do aseptic work, but bichloride of mercury, sol. 1-2000, is used freely for sponge and to irrigate the wounds except, of course, where it might be absorbed and cause poisoning.

A solution of cyanide of mercury 1-2000 is used for the hands during the operation, as it is an excellent solution to remove blood.

The patient seldom gets any preliminary treatment or preparation before the day of operation, but great care is taken to prepare the field of operation just before beginning.

It would be impossible in the limited time I have here to give anything like a detailed report of the work done at the surgical clinic, so only a few cases will be reported, those selected being from the Saturday clinic, and all except one operated on during the session just closed.

Case No. 1—Traumatic Empyema.—Mr. I. J. C., aged thirty-five, white, Henry county. In March, 1904, was knocked down and stepped on by a mule. The seventh rib in the anterior axillary line, left side, was broken. He suffered a great deal from pain and nervousness, running a temperature of about 102½ for two months from the time of the accident. He then noticed a bulging of the left side. His physician aspirated three times in the next month and got about three pints of pus altogether. In June Dr. Smith, of McDonough, sent him to me. I saw him at the college, where he had been carried from the train. He was emaciated, weak and livid. He was given a hypodermic of morphine and strychnine. A hypodermic needle was introduced into the chest at the seventh intercostal space and a milky-looking pus was removed. Then with a 2 per cent. solution of cocaine I made a free incision at the scar made by the previous

aspirations, and removed nearly a gallon of pus. A large drainage tube was inserted and the cavity irrigated daily for about a month. He was able to be up in a week or ten days after the operation and came to the college to be dressed from that time until he went home, where some of the relatives attempted to irrigate and dress him. They failed, however, and he came back in August in almost as bad condition as at first. I then resected three ribs, intending to resect six, but he took the ether badly and had great shock, so it had to be given up. The cavity was packed with about two yards of iodoform gauze. He reacted well, and four days later was given a little ether and the whole pleural cavity mopped with pure carbolic acid, followed immediately by alcohol, then wiped out with moist gauze, packed lightly and dressed as usual in such cases. From this time the cavity was irrigated and dressed as often as needed. He made a complete and uninterrupted recovery and was perfectly well by November 1, 1904, nine months from the time of the accident.

Case No. 2.—Tubercular Elbow Joint.—A young man from Florida, a student here in the Southern Shorthand and Business University, came in complaining of pain and swelling in the left elbow, and could not get the arm straighter than about 145 degrees. On examination the arm was found thickened around the joint and a small mass above the olecranon fossa. Dr. F. W. McRae operated on him and found the bone beneath the mass and in the olecranon fossa bare but not necrosed. It was cleansed out and packed with gauze and the arm put in plaster of paris. The wound was well in two weeks. The arm was then put in a plaster of paris cast, cut so that it could be removed and the arm given passive motion. When I heard from him last he was greatly improved.

Case No. 3.—Sarcoma beginning in the malar bone and extending to the nose involving the upper part of the superior maxillary bone, pushing the eye-ball upward and out of the orbit. Sallie P., colored, aged about fifty years. She first came to the clinic in June or July. The tumor was then about the size of a pigeon's egg and just over the malar bone. I advised her to have it removed. When her urine was examined it was found to contain sugar, so the operation was postponed. Later she went to Dr. Roy's eye clinic and he sent her to Dr. Nicolson to have the carotid ligated. When Dr. Nicolson learned of the sugar in her urine he also postponed the operation. Upon inquiry I found that she was eating large quantities of sweets, and especially honey. After regulating her diet, that is, advising her to leave off all sweets and starchy foods, and giving her a tonic treatment, she was gotten into good condition. October 8th, Dr. McRae saw her at the college and decided to resect the external carotid on the side opposite the tumor. The wound healed nicely, and two weeks later Dr. Nicolson ligated the other external carotid and removed the tumor, excepting a little near the lachrymal bone. He would have removed it all if the patient had not shown signs of so much shock that he had to quit. The tumor recurred at the inner canthus and grew rapidly. Dr. Wolfe then treated her with the X-Ray and there was some improvement, but during the severe weather in February she stopped going to his office, and at the last report was taking large quantities of morphine to relieve her pain.

Case No. 4.—Sarcoma of inferior maxillary bone, starting from a focus of necrosed bone, probably tubercular. Little R. W., aged three years, from Lumpkin, Ga. About four months before he was brought to us he fell and bruised the side of his face. A short time after

this his mother noticed a lump which she thought was an abscess forming. She used salves on it until it opened and discharged. From this the tumor began to extend towards the chin. When we saw him he was in good physical condition. There was a large lump involving the lower jaw from the angle to about the lateral incisor teeth. Posteriorly where the opening occurred it was red and much inflamed. There were two openings, one above the angle of the jaw, the other below and a little further forward. October 15th Dr. McRae saw him at the clinic and made an exploratory incision into the mass. There was some necrosed bone near the angle of the jaw and a lot of pyogenic tissue along the course of the sinus, but in front of this was the tumor proper. The dead bone was removed and the sinus cleaned out, but the main mass was considered sarcomatous, and when his father was told that one half of the jaw would have to be removed, and then the prognosis was bad, he decided to take the child home without having more done to him. A piece of the tumor was removed for microscopical examination, and Dr. C. A. Smith reported it sarcoma. I have heard from the child from time to time. The wound made October 15th healed completely, but the tumor has grown slowly and is extending more towards the chin. The child is here to-day and shows the tumor somewhat larger and quite hard. The inflammatory condition surrounding the point of suppuration has disappeared and leaves the tumor well defined. I am inclined to believe, as Dr. McRae suggested, that there may have been a tubercular infection where we found the necrosed bone.

Case No. 5.—Synovitis and osteomyelitis, following a badly treated slight injury of the knee-joint. A negro boy, aged three and a half years, from near Hampton, Ga.,

several months before had an injury to his knee by falling over a chair. It became inflamed and was opened several times, the pus burrowing to the middle of the thigh. He was badly emaciated, suffered great pain and had high fever, 104 when I saw him. November 6th Dr. McRae saw him at the college, promised to save the leg, if possible, but when the knee was opened it was found that the bone was too badly involved to think of saving. It was soft to the junction of the upper and middle third. The thigh was amputated at this point. The wound was drained for about a week. The child improved rapidly and in the course of a month was in fine condition. This is a good case to remind us of the great necessity of the proper treatment of joint injuries, even trivial ones. I believe that this leg could have been saved if it had received proper treatment in the beginning. It is our duty to insist on parents calling our attention to such cases and looking after them carefully.

Case No. 6.—A Tubercular Testicle.—A. G., white, aged thirty-five years. First had trouble with his bladder, frequent and painful micturition. His meatus was cut and a sound introduced into the bladder. The next day the testicle was swelled and very painful. He remained in bed a few days until the soreness passed off to some extent, then went to his work. The testicle abscessed and a fistula formed in it which discharged at intervals. He rapidly became emaciated and had night-sweats. There was a tubercular deposit in the apex of his right lung and the left lung was also slightly involved. There was pus in the urine, but it was not examined for tubercle bacilli. Dr. Elkin removed the testicle, more to relieve the pain than with the hope of permanent benefit. The patient was kept in the Tabernacle Infirmary for two weeks, but the wound did not heal to any extent, although

the night-sweats grew less frequent. He went to his home in Newnan, and I have not heard of him recently.

Case No. 7.—Tumor of Right Orbit.—A negro boy about twenty years old sent to the clinic by Dr. A. W. Calhoun. The tumor was of slow growth and about the size of a turkey egg and shaped something like a pear. The eyeball was destroyed, the lids hypertrophied and filled with a network of veins the size of a lead pencil. Dr. W. P. Nicolson decided to ligate the common carotid artery before removing the tumor. In doing this we tore the internal jugular vein and had considerable hemorrhage. The vein was finally ligated above and below the tear, the wound closed without drainage. There was considerable hemorrhage from the tumor during the removal, which was controlled with the Paquelin cautery. The orbit was packed with gauze and dressed as usual. The wounds did well and the patient seemed to be getting on nicely, except that he refused to take food in any quantity and had a persistent constipation. About the seventh or eighth day he began to complain of tingling in his left hand. This gradually approached the body and he became paralyzed on that side. He then became comatose and died the next day, about eleven or twelve days after the operation.

Case No. 8.—Case of Large Fibrous Hemorrhoids.—A white man, about forty-five years of age, a rather heavy drinker, came in with a large mass protruding from the anus. This had been down for several days and was more or less strangulated. He had not been prepared, but was anxious to have something done. I ordered him to be given an enema of soap and water, which acted nicely. I did an operation I first saw Mr. Frederick Eve do in the London hospital. It is something like the Whitehead, except that instead of cutting entirely around the anus

at the junction of the skin and mucous membrane, he divided his tumors into three masses, leaving a strip of mucous membrane between each mass, then otherwise doing as in the Whitehead, stitching the upper end of cut-off mucous membrane to the skin with catgut. In this way you have less danger of stricture of the rectum. After the operation he was given a suppository of extract of hyoscyamus and codein, of each two grains, and it repeated every three or four hours, as necessary. The result was good when the patient was last seen, two weeks later.

Case No. 9.—A young white man from Alabama, complaining of an increase in the size of his left testicle, premature emissions and varicocele. There was a history of a blow on the testicle two years before, when it swelled and had never regained its normal size. There were also two or three thickened veins, but the scrotum was rather short. There was a most peculiar condition about the glans penis, which was rudimentary, cone-shaped, no frenum and no corona to be seen, although a slight depression could be felt. He said that at one time there was complete phimosis and the skin was tightly adherent, but had been dissected off. I operated for the varicocele and found in addition to the veins a cyst at the upper end of the testicle situated between the tunica vaginalis and testicle. I punctured this and cut away part of the sac in addition to removing the veins. He did well and went home at the end of two weeks. Have not heard from him since.

SOME UNUSUAL CASES OF INTESTINAL DISEASES.

By HENRY R. SLACK, M.D., LaGrange.

In no department of medicine has more satisfactory progress been made in the last decade than in gastro-intestinal diseases. This is due largely to the more careful application of chemical and microscopical examinations in clinical diagnosis. No physician who values his reputation would insult the intelligence of a patient suffering from some stomach or bowel trouble by simply looking at his tongue, taking his pulse and temperature, asking a few questions and prescribing for him, as was the practice some years since. It is now necessary to give, not only a careful physical examination, but the test meal, macroscopical and microscopical examination of the feces, as well as chemical and microscopical examination of the urine. The blood count is often of value, but one would not risk his reputation on its findings alone, anemias from uncinariasis or strongyloides do not vary from secondary anemias produced by other causes.

Another reason the treatment of gastro-intestinal diseases is more successful than formerly is that the laity as well as the profession, are learning more and more to appreciate the necessity for proper diet, rest, electricity and physiological therapeutics, and not depend on medicine alone working miraculous cures.

The cases reported in this paper are not as rare as one might suppose, but, until recently, would not have been

recognized by the general practitioner, and, for this reason, are here briefly presented. We will not go into the etiology or pathology of these diseases, as it is unnecessary in a paper like this, nor discuss the methods used in making the examinations, though the text-book we use, and find very valuable for this work, is Simon's Clinical Diagnosis.

Case 1.—November 25, 1903: L. E. P., aged thirty-three; retired captain, U. S. A.; saw active service both in Cuba and the Philippines. Complains of chronic dysentery, with fever and night sweats. Family history, good. Personal history: Has had usual diseases of childhood and youth. Had typhoid fever when a boy, but general health has been good until wounded in May, 1900. He then developed a cough and glands began to swell. In June, 1901, Dr. N. Senn removed the cervical glands, and after that he improved and has not been troubled with cough except when he has a fresh cold. The swollen glands have never disappeared. Present trouble started in June, 1903, with dyspepsia and dysentery, which has persisted ever since, with three to six stools daily.

Examination: Poorly nourished man; heart weak, but no murmurs; P. 100, T. 101°. Slight dullness in superior lobe of right lung, and increased vocal fremitus. Left lung negative. Glands indurated. Stomach and bowels distended with gas; very tender on pressure over abdomen, especially in region of the appendix. Rectum tender, excoriated and some ulceration. Weight 108 pounds. Stools, fluid, foul and filled with gas. Microscope showed numerous tubercle bacilli in stools, but none in sputum.

Treatment: Rest in bed, massage with alcohol and olive oil. Diet: Raw eggs, milk with lime water, malted milk,

etc. Medicines: Bismuth subnit. 2 gm. doses, liquid peptonoids with creosote, salol and borolyptol.

On this treatment he improved rapidly, stools soon had form and were reduced to one or two daily, while he gained two pounds per week and strength in proportion.

Unfortunately he was called to Florida on business. Some time afterwards went to a sanatorium in Asheville, N. C., where he improved for a time, but relapsed and died a few months later in Knoxville, Tenn.

I report this case because it is the only one in my experience where tubercle bacilli were found in the feces and not in the sputum.

Case 2.—May 19, 1904: M. A., aged nineteen, schoolboy. Complains of rheumatic pains in side and shoulder, with shortness of breath. Family history: Good. Personal history: Has had usual diseases of childhood, no venereal disease, and healthy boy until four years since, when he had malaria and severe attack of rheumatism. Present trouble is sequel of grip in February, which left him with cough and swollen knee.

Examination: Poorly nourished, very anemic and sallow. Heart, hypertrophied, with marked impulse all over cardiac area, apex beat in 6th interspace, mitral regurgitation. Pulse 126, temperature 101 2-5°. Lungs negative, except slight bronchial roughness and rapid breathing, respiration 32, R. B. C. 2700000. Plasmodium malariæ.

He was treated with quinine, arsenic and iron, also salicylates, and improved for two weeks, as he missed his fever and pains ceased.

After eating a lot of plums without our knowledge, he had dysentery, which did not yield to the usual methods, so microscopical examination of the feces was made by my assistant, Dr. V. G. Williams, and he found a very

active menatode that we determined was strongyloides intestinalis. We sent specimen to Dr. H. F. Harris of the State Board of Health, and he confirmed our diagnosis. We treated this patient in the usual manner for this infection, and while he improved some, there were still a great number present when he left the sanatorium.

Case 3.—April 11, 1903: O. B. L., aged thirty-one, male, white, factory operative. Complains of dysentery for about seven months. Family history: Negative. Personal history: Has had usual diseases of childhood, but denies venereal diseases. Had severe attack of typhoid fever nineteen years since, but otherwise has had good health until last September, when he was attacked with dysentery and has had from six to twenty actions daily.

Examination: Very poorly nourished, emaciated man; though six feet, only weighed 128 pounds; tongue sharp, round and red; heart and lungs negative. Stools contain blood and mucus and amebae coli in great numbers.

Treatment: Rest, diet, electricity and quinine gave splendid results, as in a week the stools were reduced to from four to six daily, and the second week to two or three. By the end of the eighth week he was dismissed well.

Case 4.—F. E., aged nineteen, white, male, clerk in insurance office. Complains of dysentery since January, 1902. Family history: Good. Personal history: Has had usual diseases of childhood and youth. General health always good until January, 1902, when he "had a severe attack of dysentery, caused by eating a lot of fresh pork." This has lasted with more or less severity ever since. Several times during this period his bowels have been under control for a few days, then an exacerbation would occur and run the number of actions up to from

twelve to twenty a day. He had never been free from some pain and tenderness in the bowels, and mucus and blood in small quantities had always been present in the stools.

Examination: Poorly nourished man, weight only 114 pounds; heart and lungs negative; bowels slightly distended with gas and tender on pressure, especially over the appendix; rectum raw and several small ulcers, which bled when speculum was introduced; stools liquid and contained blood and mucus.

Examination showed amebae coli in great numbers.

Case 5.—J. C., aged thirty-three, farmer, white; referred by Dr. R. A. Justice. Complains of chronic dysentery for seven months. Family history: Negative. Personal history: Has had usual diseases of childhood, but denies all venereal diseases. Had pneumonia when eighteen. General health good up to August, 1904, when present trouble with bowels began, and from then has had from six to fourteen stools daily and had lost thirty-five pounds.

Examination: Poorly nourished man; heart and lungs negative; pulse 98; temperature 99 3-5°. Tongue red and fissured; bowels distended with gas, but no special tenderness; rectum irritated and very sensitive; stools watery and contained some bloody mucus. Amebae coli found.

Treatment: Of course, one must vary the treatment to suit the individual case, and meet conditions as they arise, but my experience with quinine has been very satisfactory. I sometimes precede its use by cleansing the colon with hydrogen peroxide and borolyptol. Cases 3 and 4 have gained flesh and strength and been well for some time. Case 5 is still under treatment but is much

improved, having gained six pounds and stools reduced to two or three daily.

The next two cases probably need an apology, for being classed under the title of this paper, after the excellent work done by Drs. H. F. Harris and Claude A. Smith of this Association, but hook-worms are by no means common in this section of Georgia.

Case 6.—March 16, 1905. H. D., referred by Dr. Chas. E. Simon of Baltimore, age nine, schoolboy. Complains of being weak and nervous. Family history: Good. A younger brother, strong and ruddy. Personal history: Has never had any diseases of childhood except whooping cough. Never sick except chills four years since, and cured of these by spending summer in Asheville. Present trouble started three years ago, and been poor and anemic ever since, but never had ground itch until last summer. Had thirty grains of thymol in Baltimore but did not find any worms, also male fern without effect.

Examination: Poorly nourished anemic boy, skin sallow, with puffiness under eyes; tongue broad, flat and pale; heart slightly hypertrophied; lungs, negative; temperature, 99 degrees; pulse 88, and 100 after slight extion; R. B. C., 3000000; no plasmodium malaria; urine 1.020, acid, clear; feces contain ovae uncinariae, but not in great numbers.

Treated with magnesium sulphate and thymol, being careful to see that the thymol was very finely powdered before before putting in capsules. There were five movements and some uncinariae passed.

Case 7.—March 29, 1905: R. F., aged ten, schoolboy from South Georgia. Complains of feeling weak and tired. Personal history: Has had only whooping cough, but has never been strong. "Has had ground itch lots," and chills since January.

Examination: Poorly nourished, anemic boy; heart hypertrophied; lungs negative; pulse 98; temperature 98 degrees; liver enlarged and spleen palpable; abdomen large, legs small; R. B. C. 2710000; plasmodium malariæ; urine 1.022, acid, clear, no sugar, no albumin; feces contain ovæ uncinariæ in great numbers. A typical case of uncinariasis.

Treated malaria first and when patient was stronger, thymol treatment, for hook-worms, which brought them in great numbers. Examination of feces a week later showed a few eggs still; so further treatment will be necessary.

Summary: These cases present the following unusual features: The first, tuberculosis of the intestines without active pulmonary tuberculosis. The second, strongyloides intestinalis, which had never been reported in America until Thayer of the Johns Hopkins reported three cases in 1901, and since only a few cases, about eight, have been reported. We found in this case that strongyloides are very resistant to all anthelmintics, as we never succeeded in securing a partheogenetic mother worm. This was also a more profound type of anemia than any with uncinariasis.

Amebic dysentery, as found in three, four and five, is more common than many of us suppose. While some cases yield promptly to quinine, others require additional remedial agents and hydrogen peroxide, borolyptol, creosote and bismuth subnitrate are very efficient.

Case sixth disproves an idea once prevalent that hook-worms were found only among the poorer classes and badly nourished children, as he belongs to a family of wealth and refinement. Case six agrees with the suggestion made by Dr. Claude A. Smith, that the number of uncinariae found in a case depended on the number of attacks of ground-itch, as this boy "had ground-itch a lot" and he had lots of hook-worms.

MUCOUS COLITIS.

By WILLIAM B. ARMSTRONG, M.D., Atlanta.

Synonyms: Membranous enteritis; diarrhea tubularis; mucous colic, etc.

Definition: It is a disease presenting great variety of nervous symptoms and characterized by abdominal pain, followed by the passage of considerable quantities of mucus in the form of shreds and bands or casts of a portion of the intestine. Alarming hemorrhages occasionally occur with the passage of mucus.

History: This condition has been known for centuries. One of the first cases was described by Fernelius in Paris in the year 1554, of an ambassador of Charles V. Mason Good described "diarrhea tubularis" in 1825, and Da-Costa called attention to the nervous element of this condition in 1871. In recent years it has been carefully studied by a number of investigators, prominently among whom are Hermann Nothnagel and Carl von Noorden.

Etiology: Most cases occur in nervous, neurasthenic, hysterical individuals. Women are more often affected than men, and adults more frequently than children.

Pathological anatomy: The pathological findings throw but little light upon the nature of this condition. Hemmeter subjected certain portions of the colon that were covered with a thick layer of mucus to careful macroscopic and microscopic examinations and failed to find any histologic evidence of inflammation. O. Rothman has found evidence of slight catarrhal inflammation which

he regards as secondary. The membranes when viewed under the microscope are transparent and structureless, and imbedded in them are granules, broken down epithelial cells, crystals and particles of fecal matter. These membranes have been thoroughly investigated chemically and have proven to be composed of mucus.

Symptoms: These patients complain of a great variety of nervous symptoms, prominently among which are palpitation of the heart; sense of fullness in the abdomen, often accompanied with flatulence; inability to take a long breath; indefinite pains, and great mental depression. I have had patients tell me they had much rather die than remain in their present mental state, and when asked to state their feelings they simply say they suffer from terrible attacks of the "blues," for which they find no cause. As a rule their appetite is poor, and they often suffer from headache. Just before an attack the nervous symptoms increase in severity and often a severe headache develops; the patient complains of pain in the region of the umbilicus, the right or left inguinal region, or over the whole abdomen. Often the pain is so severe that drugs have to be administered for its control. Tenderness may be present over the whole abdomen, or confined to the course of the colon, or the right or left inguinal region. Occasionally McBurney's point is the site of greatest tenderness. At this time nausea and vomiting may occur. The temperature seldom goes much above normal. After these symptoms have become established the patient may at any time pass large quantities of mucus in the form of shreds and bands or casts of the intestine. These casts are often of considerable length, measuring from a few inches to considerably over a foot. In rare cases alarming hemorrhages from the bowel occur just previous to or during the passage of mucus. All of the mucus may

be passed at one time, or there may be several passages a day for several days. After this the patient is very much prostrated, but the pain and tenderness are greatly relieved. Such attacks may occur at intervals of weeks or months.

Generally the cases are not as plain as the one just described, but the patients will tell you they suffer from indigestion, a sense of fullness in the abdomen, palpitation of the heart, and that they are extremely nervous. They may or may not mention having passed large quantities of mucus, and when questioned on this point may deny it. (This is due to the fact that water-closets are used and that stools are seldom seen.) They generally give a history of chronic constipation, or constipation alternating with diarrhea. Upon examining these patients you generally find them fairly well nourished, with a flabby and slightly coated tongue. Examination of the blood shows a slight degree of anemia. Examination of the stomach contents shows slight increase or decrease in HCL—in a few cases it is entirely absent. Examination of feces, after administering a purgative, generally shows a considerable quantity of mucus.

Pathogenesis: The cause of this peculiar condition is still a mooted question. Some believe it to be the sequel of previous inflammation of the lower intestinal tract; others incline to chronic constipation as the cause, while still others think that the cause must be looked for in the nervous system. The nervous element of this condition is certainly most prominent, and in the absence of positive pathological evidence one is almost forced to lean to the latter theory, viz.: that the nervous system is an important causative factor. Nothnagel describes two classes of cases, one in which the mucous membrane of the colon presents a perfectly normal appearance; in these

cases he claims the enormous production of mucus is a pure neurosis. In the other class of cases he claims the individuals are attacked by a true intestinal catarrh, and, being nervous, they develop a neurosis of secretion. Von Noorden also attributes the overproduction of mucus to a neurosis of secretion; but he believes chronic constipation to be the exciting cause, and states that almost without exception his patients suffered for some weeks or months from obstinate constipation. I know of two cases in both of which alarming hemorrhage occurred. In one of these examination of the rectum revealed the existence of internal hemorrhoids; in the other, which occurred at the Grady Hospital, unfortunately no examination of the rectum was made.

Prognosis: Prognosis in relation to cure is bad; most of these cases run a long and tedious course. The disease itself rarely, if ever, proves fatal, though a few cases have developed hysterical mania, resulting in death.

Diagnosis: This condition has been mistaken for appendicitis, and the appendix has been removed with no resulting benefit to the patient. This has been done not in one or two instances, but in a considerable number, and by some of the most prominent surgeons in this country. The stomach has been held responsible for the symptoms of this condition, and has been treated for months with no improvement, a frequent diagnosis being gastroptosis. Notwithstanding these errors in diagnosis, it is not a difficult one to make, for it depends upon finding the mucus in the stools, and if you are careful to examine these, and instruct your patient to do likewise, you will soon be rewarded.

Treatment: If a patient is seen in an attack the bowel should be emptied of its mucus by high enema; pain, if possible, controlled by hot applications to the abdomen.

If this fails, codeine or morphine hypodermatically. For the general treatment of this condition I know of no drug that does much good. I have gotten the best results by relieving the constipation with six ounces of olive oil at bedtime, to be retained overnight (the olive oil should be shaken in warm water to dissolve out the fatty acids, then poured off and injected). Some do well on the diet recommended by Von Noorden, which consists of articles of food that leave a large residue, such as graham bread, asparagus, boiled or baked potatoes, grapes (swallowing the hulls), milk one-third cream, and large quantities of butter. He claims for this treatment permanent success in fifty per cent. of all cases, incomplete success in fifteen and eight-tenths per cent., relapses in thirteen and one-tenth per cent., unknown in fifteen and eight-tenths per cent., failure in five and two-tenths per cent. In the extremely nervous cases the rest treatment, with massage, seems to give the best results.

DISCUSSION ON DR. ARMSTRONG'S PAPER.

Dr. H. F. Harris, Atlanta: I think the thanks of this Association are due Dr. Armstrong for bringing this matter before us. I think there is no disease that is so common, and yet so frequently mistaken. I know of three cases that were operated on for appendicitis in the last three years, where the mistake was made, and the patient was subjected to the operation, and the whole thing might have been avoided by making a correct diagnosis. I know of several instances where they were getting ready to do the operation when a recognition of the condition saved the patient from the operation.

I have nothing to add, and want to thank Dr. Armstrong for presenting the subject, and I endorse what he has said.

THE DIAGNOSTIC AND THERAPEUTIC IMPORTANCE OF THE RECENT ADVANCES MADE IN THE EXAMINATION OF THE FECES.

By H. F. HARRIS, M D., Atlanta.

The offensive and otherwise unesthetic peculiarities of the feces have very naturally prevented that close examination and investigation that has been accorded to the other excretions, and, as a consequence, one of the most valuable and reliable means of acquiring knowledge concerning the condition of our patients has been in the past almost totally neglected. No better illustration of this truth could possibly be given than our failure for generations to properly diagnosticate hook-worm disease—perhaps the most common of all the serious affections in Georgia. Happily for our patients this state of affairs can not long continue, for recent investigations have shown that so much information of the utmost importance may be gained by an examination of the feces that the matter can not much longer be neglected.

Of the many possible ways that the feces may be investigated only two have so far proven of importance—microscopic examination and chemical analysis—and both should invariably be employed except in those cases where we wish only to establish the presence or absence of parasites by an examination for their eggs.

In order to facilitate matters a brief reference at this

point will be made to the technic of the investigation of feces for eggs of parasites. Fortunately this is extremely simple, as it is only necessary to place a small particle of the excretion on a clean slide, if not already sufficiently fluid add a drop of water and mix thoroughly, after which a cover-glass may or may not be placed over the mass and the specimen examined under a fourth or fifth inch objective. In instances where this method fails to reveal the eggs of a suspected parasite it is well to add to a small quantity of the feces enough water to make the mixture quite fluid and centrifugate; in the sediment the eggs will generally be found without difficulty where a parasite is present. This simple method of detecting the eggs of parasites where they are few in number is due to my friend Dr. Claude Smith, of this city.

Where the examination is made for amebæ no water should be added to the feces, nor should there be urine or other extraneous substance mixed with them; particles of bloody mucus, which are so often seen in the stools of those suffering from amebic dysentery, are the most favorable portions in which to look for the parasites. The specimen should be examined, immediately after it is passed.

In those cases where we wish from an investigation to form some idea of the chemical composition of the feces, and to determine the extent and nature of the digestive processes, it is always necessary to place the patient on a "trial diet" for at least forty-eight hours before obtaining the stools for examination—the character of this diet depending on what we particularly desire to learn.

In those instances where we wish to determine the extent of the functional activity of the digestive processes

the trial diet devised by Schmidt and Strasburger (1, 2) bids fair to be of the utmost service, though time and experience only can show just how much importance can be attached to the results. It may, however, be confidently stated that either this trial diet or some modification of it will in the future play an important part in working out diagnoses in obscure cases of chronic disease.

The diet and the method of its administration is as follows:

Breakfast.—Two glasses of milk. Where this is not well borne two glasses of cocoa prepared as follows may be substituted: Two-thirds of an ounce of cocoa, one-third ounce sugar, one-half glass milk, and one and a half glasses water. With this is eaten a roll or two slices of bread.

11 a. m.—A gruel prepared as follows: One and a third ounces grits, one-third ounce butter, one-half glass milk, and one and a half glasses of water; cook well and add one egg. Strain.

Dinner.—Four ounces of well beaten beef so cooked that it is very rare in the inner portions; to this is added two-thirds of an ounce of butter. With the beef are eaten six ounces of mashed potatoes, to which a half cup of milk and a third of an ounce of butter are added.

5 p. m.—Milk or cocoa with bread, as in the morning.

8 p. m.—Gruel prepared as for the 11 o'clock meal.

After the patient has been on the diet for forty-eight hours the stools are investigated daily for as long as may be desirable. In many instances one or two examinations will suffice, but in order to get a satisfactory idea as to the true condition in chronic disorders of the digestive apparatus it is generally well to carry on the observations for several days or a week. In cases where

constipation exists it will, of course, be necessary to administer mild laxatives from time to time.

In examinations of the stools the consistence, color and odor should first be noted, and then the feces are placed in a wide-bottomed, shallow vessel, and water added where necessary in sufficient quantity to give the whole a semi-liquid consistence; where, as is usually the case, there are more or less solid masses these should be rubbed up with the water until the entire contents of the vessel becomes homogeneous.

The more important parts of the examination now begin:

Macroscopical Examination.—A careful search is now made for the gross particles of undigested food.

In starchy dyspepsia masses of potato are always present, these being, in bad cases, as large, or even larger, than a pea; these particles are soft and whitish in color, and are almost transparent. A few very minute masses of starch may be encountered in instances where digestion is practically normal.

In cases where albumenous foods are improperly digested, ragged masses of meat are found, and also whitish or yellowish curds from the milk taken in the test diet. Failure of stomach digestion is shown by the presence of grayish particles of fibrous tissue, which may be identified in cases of doubt by resort to the microscope. Where intestinal digestion is at fault, these masses of fibrous tissue will be accompanied by brownish collections of muscle fibre, or the latter may be in isolated bundles. As has been clearly shown by Pawlow (3) and Schmidt (4), it is the office of the gastric juice to digest the fibrous tissue from around the muscle, while the latter goes almost unchanged into the duodenum and is finally dissolved by the pancreatic juice. In not

all cases, however, where muscle fibres are found in the stools is the pancreas at fault, since where there is excessive peristaltic action, as occurs in diarrheas, the muscular tissues do not remain sufficiently long in the intestines to be fully digested.

In addition to looking for undigested food, we should always search carefully for particles of mucus, since these are common in all ulcerative diseases of the intestinal tract, and are at one time or another always found in that common, but seldom diagnosticated disease—mucous colitis.

In very foul, decomposing feces large crystals of triple phosphates usually occur; they may be recognized by their coffin-lid shape, and by the further fact that they are soluble in all acids.

Microscopic Examination.—In carrying out the examination, it is well to make three preparations.

Three slides are properly cleansed and a small amount of the semi-liquid feces is placed on each; on the first, a cover-glass is placed without further treatment; to the second a small drop of 30 per cent. acetic acid is added, and the slide is then held over a flame until it begins to boil, and a cover-glass is placed upon it; to the third a drop of watery solution of iodine is added and over the feces a cover-glass is likewise placed.

In the first of these we find, under normal conditions, masses of food detritus and multitudes of bacteria; among the more conspicuous objects encountered are particles of the chaff of the grain from which the ingested bread was made, a few remains of muscle fibres with their striation gone, or almost so, soap crystals, and many rounded, yellowish masses of calcium in combination with various fatty acids. We also find empty potato cells and, where cocoa was used, reddish-brown remains

of this substance. Under pathological conditions there are many larger and better preserved muscle fibres, with their ends square and showing marked striation. There are also many potato cells with their contents undigested. There may be found droplets of fat and crystals of fatty acids. Where stomach digestion is bad, there will also be found strings of fibrous tissue.

In the second preparation, after cooling, the fats will be found in distinct masses, while the crystals of fatty acids in combination with calcium entirely disappear; by means of this preparation we get a better idea of the entire amount of fatty acids. In pathological states the number of these masses is greatly increased.

In the third preparation, under normal conditions, the contents of the potato cells may, when well digested, show but little change, but if there remain minute particles of starch, these assume a reddish violet tone, but when starch digestion is bad and this substance is not dissolved out of the cells, it assumes a dark-blue color. The iodine also imparts to bacteria and yeasts a violet color.

Chemical Examination.—With pieces of blue and red litmus paper, we note the reaction; normally, this is faintly acid or amphoteric, but may be alkaline. When very acid it indicates starchy fermentation. When alkaline, albuminous decomposition. At this point it may be mentioned that a sour odor generally accompanies an acid reaction, while a very foul smell always indicates putrefying albumens.

We next determine the presence or absence of the biliary pigments by placing a small amount of the semiliquid material in a test tube, and adding a saturated solution of corrosive sublimate in water; if the pigments have undergone the normal change into hydrobilirubin,

the mixture assumes a carmine red color in from an hour or two to twenty-four hours, but if there remain still particles of unaltered bilirubin, these assume a green tint.

The fermentation test is next carried out. This consists in placing some of the material in an ordinary fermentation-tube, or, better, in the apparatus specially devised by Strasburger for the purpose.

The tube is filled with the semi-liquid feces and put in an incubator at thirty-seven (37) degrees C. for twenty-four hours. At the end of this period the tube is removed and the quantity of gas collected in the closed arm of the tube noted; normally there is but little gas found, but if as much or more than one-third of the tube is filled, it indicates the presence in the feces of an undue amount of starch. If there is a pronounced starchy fermentation the reaction of the liquid will have become strongly acid; if this is not the case, and there is much albuminous food remaining in the feces, little gas will be found and the reaction becomes in the end strongly alkaline.

The testing chemically of the feces for fat is as a rule unnecessary, as we can always detect a decided increase in the quantity by means of the much more simple microscopic examination. It may, however, be stated that in health the dry feces contains 23 per cent. of fat, and, according to Mueller, normally 84.3 per cent. of this is made up of fatty acids and soaps, while in pancreatic disease only 39.8 per cent. of the total fat occurs in these forms. The methods of making these analyses are not very difficult, but require a laboratory, and, as a consequence, are of no general practical interest, and will not be here considered.

Likewise the determination of the amount of albu-

mens dissolved in feces may ultimately prove of clinical value, but there is as yet so much uncertainty as to the best method of making the analysis, that I will not attempt to further discuss the matter.

It might be thought that the bacteriological examination of stools would be of value, but there are such myriads of these organisms in the feces that this method of investigation is practically valueless. It is of interest, however, that it has been shown by Strasburger (3) that no medicine whatever diminishes the number of bacteria in the feces; some of them, like calomel, curiously increasing the number, as a result, probably, of their interference with digestion. The only way that they may be diminished is by decreasing the amount of albumen taken, which acts as a culture media for them.

The clinical significance of these various findings may be briefly summed up as follows:

Mucus.—An increase in mucus occurs in all disorders where there is a so-called inflammatory condition of the intestinal tract; where the lower part of the tube is affected this substance occurs in distinct masses. The presence of recognizable blood and pus cells in flakes of mucus indicates, as was shown by Sahli, that its origin is in the large intestine—these bodies being digested if they come from higher up. Even more commonly than in inflammatory affection, mucus occurs in that curious disease called membranous colitis, which is very frequent among women; in this case it usually occurs in large masses and, as a rule, contains no pus or blood-cells.

Unchanged Bilirubin.—Portions of the feces that become green with the corrosive sublimate test—even when microscopic—indicate either increased peristalsis, or a failure on the part of the coloring-matter to undergo the usual reduction change in the large intestines. The

white so-called alcoholic stools without jaundice of Nothnagel are even now admitted by him to be due to a failure in fat absorption, or to the further conversion by hydrobilirubin into leucohydrobilirubin.

Increase of Fat in Stools.—This condition is due, in some cases, to closure of either the pancreatic or common duct, and in others to disease of the pancreas itself. This may also be the result of the closure of the ducts that carry the bile from the liver, the absence of the secretion preventing proper digestion of fat, and, finally, failure on the part of the intestine to absorb fat may be responsible for a like condition.

Remains of Meat.—If the meat of the trial diet be taken partially raw, as directed, portions of fibrous tissue indicate stomach dyspepsia, digestion of the raw meat being only possible in the normal viscus. The trouble would usually be absence of secretion, or, occasionally, an increase in the gastric juice which, as shown by Koevesi (4), is often accompanied by a diminished amount of pepsin.

If pieces of muscle are found, this indicates trouble with the pancreas, or it may be that the peristalsis is so active that the food does not remain sufficiently long in the intestine to become properly digested.

Of course, a combination of fibrous tissue and muscle would indicate trouble both with the stomach and intestine.

Undigested Starch.—This indicates, as a rule, disorders of the glands of the small intestine, and this secretion is necessary in order to bring about proper starch digestion; usually this condition is of no grave significance. Of course, the trouble may be caused by improper pancreatic secretion.

Decided Gas Formation with the Fermentation Test.—This condition usually indicates starchy indigestion.

The information contained in the foregoing has been almost entirely taken from Schmidt's most excellent monograph on the subject already referred to, but I desire to say that I have made a considerable number of examinations by this method during the last six months, and feel that I can substantiate in practically every particular the principle contentions of Schmidt, and feel that with his investigations a new era opens up in gaining a clearer and more definite concept of disorders of the digestive apparatus.

Chemical Examination for Blood: The next advance in the examination of the feces to be considered consists in the detection of small quantities (occulte blutungen) of completely disorganized blood in this excretion which may be done by many methods, the best being probably that recommended by Weber (5).

In making the test, it is important that the patient should be placed on a diet entirely free from meat, as even very small amounts of this substance will give a positive reaction with this very delicate test. It is usually necessary to make examinations from day to day in order to arrive at conclusions of value. It is well to give some mild cathartic, such as cascara each night, while the investigation is being carried on.

The test, as recently modified by Boas (6), who has done most of the investigation by this method, is as follows:

A drachm of the semi-liquid feces is placed in a test-tube and shaken up with a half ounce of ether, this being for the purpose of removing all fat. The ether is poured off and about a drachm of acetic acid added, and the whole well shaken. Then about a drachm of ether is poured

into the tube and the whole gently shaken, being careful not to mix the contents to the point where a complete emulsion is formed. The tube is then set aside for a few moments and the ether that collects on the top of the mixture poured into another tube. To this is then added a pinch of pulverized guaiac or Barbadoes aloes, after which we pour into the tube twenty to thirty drops of old turpentine, and shake well.

In the course of from a few moments to several minutes, if blood be present, the mixture will turn blue if guaiac be added, and red if aloes has been used. If at any time during the formation of the colors we desire to gauge precisely the tint of the liquid it is only necessary to pour out a few drops on white filter paper where the comparison may be made with great ease and certainty.

The investigations of Boas (6), Ewald (7), Clemm (8), Hartmann (9), Joachim (10), Schloss (11) and Schmilinsky (12) are most thorough and of great interest, but time will not permit a complete discussion of the subject. I shall content myself with only a brief resumé of the clinical significance of the detection of blood in the feces.

The disorders of the gastro-intestinal tract, in which this symptom may or may not occur, and in which it is important from a diagnostic standpoint, may be classified as follows: (1) Those in which bleeding does not occur; (2) Those in which it is present from time to time; (3) Those in which it is constantly present.

(1) Those in which bleeding does not occur: Gastritis anacida and subacida, hyperchlorhydria, ectasia and all stomach and intestinal neuroses. In Reichmann's symptom-complex blood may or may not be present, depending on the cause.

(2) Diseases in which bleeding occurs from time to time: Gastric and duodenal ulcer, consecutive spastic stenosis of the stomach, gall-stones and closure of the gall duct from other causes, and tubercular ulcers. All conditions leading to congestion of the portal circulation.

(3) Diseases in which blood is practically constant: Wounds of the esophagus caused by swallowing foreign bodies, among which may be mentioned the introduction of stomach sounds. Cancer or gummata in any part of the tract. Gastritis causing stenosis of the pylorus, polyps of the stomach, the severer forms of alcoholic gastritis, dilation of stomach, so long as food remains all the time in the viscus, cancer of the pancreas and liver and, according to my limited experience, hook-worm disease.

In addition to these well-defined groups, it is known that bleeding occurs more or less constantly in acute pancreatitis, balantidium disease, parenchymatous bleeding from the stomach and in typhoid fever, systematic examinations in the latter diseases furnishing the only scientific basis upon which it could be possible to assert that the ulcers that accompany this disease were healed.

Notwithstanding the enormous amount of work that has been done on this subject, much yet remains to be learned, and I trust that this paper will be the means of calling the attention of my colleagues to the importance of the matter, and get their assistance in further working out the problems that remain.

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DISCUSSION ON DR. HARRIS'S PAPER.

Dr. Claude A. Smith, Atlanta: I have listened with a great deal of pleasure to this most excellent and thorough paper by Dr. Harris. It is something that is practical and of great value, and many of these examinations can be made by the physicians themselves with a little practice, and the results are of great assistance in doing thorough work, and more attention should be paid to it.

Dr. H. F. Harris, Atlanta: It has been shown by Boas and others that the occult bleeding in cancer of the stomach is constant. It therefore becomes a matter of extreme importance in making a diagnosis. Where there is any doubt this symptom is of the utmost importance. The Germans are coming to the opinion that the extreme anemia in cancer of the stomach is due entirely to this constant dribbling of blood.

CIRCUMCISION, ITS IMPORTANCE IN THE TREATMENT AND PREVENTION OF CERTAIN REFLEX NERVOUS PHENOMENA.

By MARK H. O'DANIEL, M.D., Bullards.

There is no operation in the field of minor surgery, the modus operandi of which is so easy and simple, which affords so much protection and relief to the patient as that of circumcision. It protects, in that it makes the individual less liable to the contagion of venereal diseases, balanitis, and the irritations so common and annoying in the warm season from a long, tight prepuce, and it relieves the divers reflex neuroses resulting from phimosis. The old Jewish rite of circumcision on the eighth day evidently had as its fundamental principle that of hygiene and cleanliness.

The proper time to do the operation should, however, rest in the judgment of the physician, the best time, in my opinion, being when the conditions are such as to justify it.

It is true, we could dilate the opening and break up the adhesions, but after all this does not give the satisfaction and relief a complete circumcision would do.

In the treatment of various nervous troubles found in children and even in older subjects, we should be careful that we do not overlook this cause. Indeed it is really surprising what distressing symptoms phimosis will cause, and if let alone what serious results will follow.

I give here a few cases, taken from my note-book, which I trust may prove interesting:

Case 1.—Young man, nineteen years of age, of good family history; pale and effeminate looking. The leader in his class at school, he suddenly became the subject of a hysterical form of mania. He would laugh and cry alternately, make speeches, etc., and at times became melancholy and listless. He slept but little, ate but little. He had been treated a few weeks by the family physician, when he came under my care. After gaining his confidence, I found upon examination a tight, long prepuce, which I decided the whole chain of nervous symptoms came from. He stated, he had suffered from frequent erections and practiced onanism that he might study and rest. These erections were no doubt at the outset irritative. I advised circumcision as the best means of relief, to which he consented. After doing the operation, I prescribed absolute rest, nourishing food, opium and camphor, for the double purpose of rest and as antiaphrodisiac. In a few days he was decidedly better. He continued to improve and in three months was entirely well and stronger than ever before, and has remained so.

Case 2.—Boy, seven or eight years of age; thin and pale; had weak facial expression. Family history very good. Quite nervous. His lower limbs were small and he complained of pain in his joints. He had been treated for rheumatism. I suspected the trouble at once, and upon making an examination found long, pointed prepuce, with phimosis. Operated on him, and removed quite an accumulation of smegma around corona and under prepuce. I put him upon tonics, massage and faradism to lower extremities, and in two months he was well and a nice looking, active boy.

Case 3.—Baby boy, eight months old. Was quite ner-

vous and fretful, slept badly. Had an eruption over his body and face, which was annoying. Had long prepuce, with pinhole opening, ballooning, as it were, when he urinated. I circumcised him, and in a week he was well, and the mother took him home happy.

Case 4.—Boy, nine years old; of neurotic history; appearance very good and healthy. He had been well and all right until recently, when he became frightened at seeing a crazy negro handcuffed, and ran away from home. When found he was sitting down, playing on the ground. When taken hold of to carry him home he fought and resisted, but finally became quiet and went along. He appeared rather subdued and listless until the next day, when he had a nervous spell, as the father termed it, in which he would bite his hands, and if let alone would run. The family physician was summoned and after treating him for these spells, which came every day, for about a week, sent the boy to my office for diagnosis of his case.

After carefully examining him I found he had a long, tight prepuce, and that the trouble was reflex, and most likely incipient epilepsy, in which phimosis was the exciting cause, with a hereditary predisposition.

I advised circumcision as the best means of treatment. Being some distance from me I have not kept up with the boy, but presume he is doing well.

There is no doubt but that many cases of reflex nervous troubles similar to the above come from this cause, and unless one is careful in his investigation he will fail in properly locating the cause, and hence in a correct diagnosis. I have seen a number of cases of incipient epilepsy in which there was only a facial movement or smacking of the lips, and again several in which there was no other symptom excepting a disposition to run.

As soon as the wave or paroxysm passed, the patient would be himself again. Often they are irritable and drowsy and fall asleep, and on waking never realize what has happened.

My object in presenting this paper is to show the importance of a closer investigation along these lines and the importance, too, of circumcision as a means of treatment and relief in such conditions.

X-RAYS IN EXTERNAL TREATMENT.

By M. B. HUTCHINS, M.D., Atlanta.

Mode of action of X-rays: McLeod (24) quotes Pusey as expressing the belief that while the rays have no bactericidal effects in the laboratory, the disappearance of pus in certain cases and the cleaning of lesions seem to indicate some such action *in vito*. The more probable explanation is that they set up a reaction in the tissues and a flow of serum which themselves act as germicides.

McLeod further says that the rays cause devitalization, degeneration and destruction. Sometimes the cell toxins produced seem to set up, in the ray-weakened tissues, ulceration, necrosis and sloughing, healing with vascular and imperfect scars. He very correctly states that mild doses of the rays have a stimulating effect upon the healthy elements of the skin. Large doses and long exposures, nearness to the tube, etc., devitalize the elements, interfere with regeneration, cause degeneration. The more highly differentiated structures, as hair follicles, glands, both sweat and sebaceous, the nails and the blood-vessels are more readily and intensely affected than the less distinct element.

Pathologically altered cells, of epiblastic or mesoblastic origin, are far less resistant than healthy cells. He states (truly) that while these are being destroyed the healthy cells may be stimulated to actual repair service.

Action of cell toxins from cumulative effects of X-rays may cause the train of severe symptoms above mentioned,

serious destruction, slow and imperfect repair. I find no mention of action upon the nerves, but with mild treatments there follows, often, relief of itching or pain. Burns of intensity are sometimes followed by agonizing pains, requiring the use of morphine, and lasting for days, weeks, or, as in neuritis, for months. Some of these burns alternate healing and relapsing, and their end is hard to foresee.

The toxins from tissues broken down *en masse* may produce a general toxemia, reaching a lethal termination. Kienbok (11) mentions much the same well-known effects of rays, as destruction of young and proliferating cells, hairs, epidermis, and also the epithelium of the spermatic ducts. The latter brings to mind recent discoveries of aspermatozoa in persons too much or too closely exposed to the X-rays, this condition sometimes becoming permanent. Kienbök says that microsopic changes in cells may be noticed a few hours after treatment, and marked inflammatory changes after one to three weeks. This so-much reported tardy development of X-ray reactions it has not been my unpleasant privilege to be troubled with. In my cases development of reactions has been regular and progressive, often subsiding shortly after suspending use of X-rays, but a few times a sudden and violent outbreak occurred, very difficult of explanation, and extending far beyond the exposed area.

The last quoted writer attaches no importance to idiosyncrasy, but he does not refer to the difference in susceptibility of the various skins, their reaction in the primary degrees resembling their individual tolerance or intolerance to the sun's rays.

Franklin (15) also does not believe in idiosyncrasies. While X-ray therapeutics have become established as a most valuable aid in the treatment of diseases, and rules

for accurate work are being formulated, a personal knowledge of the cases treated and a thorough acquaintance with one's own apparatus are necessary for successful work. We must acquire a familiarity with the action of the tubes at different vacuum and under varying conditions of weather, and not forget the atmosphere of electricity complicating the treatments.

Equally good results follow the use of the coil and the static machine in properly selected cases. My own apparatus is the coil, electrolytic break, perfected by the addition of some special appliances. The vacuum of tube used and time of exposure are fitted to the needs of the case. The production of the "sunburn" reaction is often desirable of more marked burns only as needed. Slight burns are necessary in most cases of skin diseases, deeper burns only where deep destruction must be produced. In malignant lesions or growths the latter are often required, but the treatment must be so given as to destroy, if possible, every disease cell, else those remaining grow more rapidly in the tissues rendered weakly resistant by X-rays. So much of cancerous growth as possible should be excised or curetted away at the beginning, because the wounding of the tissues lowers their resistance to the X-rays and instrumental removal leaves less work for the rays in the destruction of the disease.

Watchfulness, discretion and patience are essential in the work. In my X-ray experience I have come to expect to cure at least temporarily, often permanently, all cases of superficial epithelioma and rodent ulcer, to benefit most cases of deeper seat, to cure no far-advanced case of cancer. Often the patient chooses X-rays because of the absence of pain in the treatment; often the case is amenable to no other method. It is the only treatment for many conditions. I expect to be able, given sufficient

time, thus to free patients of superfluous hairs, obstinate acne, comedos, some eczemas, psoriasis at least temporarily, warts and precancerous lesions, diseased hairs in ring-worms and favus of the scalp and other hair affections, as pustular sycosis and ring-worm of the beard. Mycosis fungoides seems to have no other remedy. Authorities quoted below express my views well, after four years of practical work with the X-rays, save in cases where they directly contradict a mass of evidence.

In a large experience with this treatment one learns to select appropriate cases, to make few or no promises, and to expect some disappointments.

When the evidence from all sources is sifted, rubbish removed, and the clean facts left distinct, the conclusion is fixed that X-ray treatment has a definite and permanent field.

DISEASES REPORTED CURED BY X-RAYS.

Saboraud and Noire (1, 2, 3). (Ringworm of scalp is difficult to cure because of depth of fungus in follicle and permeation of hair-roots with the germ beyond reach of germicides.) Three hundred and twenty-seven cases cured by Saboraud in one year. Other cases reported by Sale Barker (4), Saboraud's interval treatment to scalp, weak solution of iodine. Barker's the ung. and hg. amoniat.

Bowen (7) quotes Belót: To obtain a cure every diseased hair must be made to fall. The hairs regrow unless treatment has been too severe.

Kienbök reports other cases of scalp ringworm and of the variety known as barber's itch. Dunn (16) refers to value of rays in similar cases, and Saboraud (22) further reports both on the ringworm and favus cases.

Sycosis vulgaris reported benefited or cured by Montgomery (3), Bowen-Belót (7).

In lupus vulgaris cures or good results recorded by Burns (3), C. J. White remarking more rapid improvement following preliminary curetting. Gibson (11), Keinbök (11) and Pancoast report benefit without cure. Pfahler (12) reports a cure of lupus vulgaris of lip, chin, inner canthus, and mucous membrane, nares and lip; treatment applied directly to the external lesions alone. Other good results by Dunn (16). Many cases reported in which cures were not fully established. Lupus vulgaris is rare in this climate. One cure and one apparent cure when last seen of the two cases so treated by me. Belót (17) does not think X-rays particularly better than other methods.

Bowen-Belót (7), alopecia-areata cured by mild treatments with X-rays, the hairs being stimulated to growth.

Kienbök considers the above disease easily curable by this treatment. This method is thoroughly practicable for these cases, provided the reaction is not so great as to produce permanent atrophy of follicles with defeat of the object aimed at.

Type of "birthmark" known as "port wine" changed from hypervascular area to scar tissue, by exudative "burn" of rays. The unsightliness of the scar is scarcely to be preferred to the original disfigurement. Cases reported by Lavack (5). Belót (7) reports great improvement in these cases after violent reaction was produced. Dunn (16) criticises (justly) results of treatment of these vascular areas.

Paget's disease of areola and nipple with resultant carcinoma reported practically cured (quoted 6), and Fordyce (20) showed at meeting of New York Derm. Soc. a case of this disease affecting the gluteal regions cured by X-rays.

Bowen-Belót (7); the latter considers X-rays inferior

to electrolysis in hypertrichosis. Gibson (11) objects to their use in this class of cases because of "atrophy of skin, telangiectases and depigmentation occurring even after an interval of a year or more." This observation is too radical. A feminine face disfigured with hairs and perhaps comedones and pimples with open gland mouths certainly profits by the substitution of a smoothing of the skin, loss of the hairs and disappearance of all these unsightly lesions. The skin does not acquire a thinned and a smooth look, but is not disfigured as the writer asserts. The bad after-effects that he mentions have failed to come under my observation. Beaded (trichorrhexis nodosa) hairs fall after X-ray treatment, regrow normal. Dunn (16) publishes satisfactory results in hypertrichosis. Pusey and many others have found X-rays the only treatment in many of these cases. This coincides with my experience.

Belót (7) thinks only rebellious cases of acne should be treated by X-rays. Gibson (11) reports good results in acne rosacea and comedones. Pfahler (12) concludes that X-rays best meet the indications in acne, relapses are less frequent. It is not necessary to produce severe burns and the slight atrophy will not be likely to occur if burns are prevented. A slight erythema slowly acquired is sufficient. In the main his results correspond with mine.

Bowen-Belót (7) does not approve of treatment of psoriasis by X-rays, unless case is severe. On the other hand, Gibson (11) reports the ready yielding of mild cases of this disease, although treatment does not prevent relapses. I have been able to remove this eruption more easily with this method of treatment than with any other.

Eczema seborrhoicum improved by X-rays, Bronson (20). Ordinary warts (verrucae) yield nicely to this

form of treatment (7 and 11). Telangiectases reported one year after in one case (4). Bowen-Belôt (7) four cases of keloid beneficially affected by mild treatment with X-rays, and Pancoast (10) reports one case cured, others unaffected.

Gibson (11) and Dunn (16), eczema cases showed good results. Montgomery, of San Francisco, reports some of those cases of vesicular eczematoid disease contantly relapsing, affecting the fingers chiefly, often the toes, and very intractable to usual treatment, cured by X-rays.

Belôt (7), two cases of schleroderma improved by rays. Lupus erythematosus reported cured. Also by Dunn (16) and Gibson (11), seborrhea (presumably the oily form), hyperidrosis, pruritus (11), prurigo, lichen ruber.

Mycosis fungoides, a disease hitherto unyielding to any treatment, now shows many, at least temporary, and a few apparently permanent, cures, as reported by Belôt (7) and Gibson (who mentions relapses). Belôt (14) showing disappearance of all symptoms, the terrible pruritus yielding rapidly. Carrier (19) reports complete disappearance of all subjective and objective symptoms in the case of a man of seventy-five years, disease present twelve years. Pusey (21) mentions numerous cases from the literature of Schultz, Jamieson, Stainer, Riehl, Marsh, Hyde-Montgomery and Ormsby, Brocq, Bisserie and Belôt.

Lustgarten (21) and Elliott showed other cures at meeting New York Derm. Society, also Bulkley (23).

Various pruritic affections benefited or relieved (7) and (Gibson, 11) itching and pain. Some sarcomas (Belôt, 7) have yielded more readily than similarly situated epitheliomata, while Pancoast (10) does not think

sarcomas as a rule do well under this treatment. Gibson (11), melano-sarcomas yield, the cells of the soft, rapidly-growing type being especially sensitive to the rays and rapidly destroyed.

Béchlère (13), twice operated and recurrent sarcoma of malar bone and orbit after operation cured with forty X-ray treatments. I had a similar case; patient became too weak to continue treatment.

Belót (14), two cases of the melano-sarcoma type improved, and two of the diffuse cutaneous variety benefited by very few treatments. Dunn (16) also publishes favorable results in sarcoma.

Warren (8) and Codman (9) warn against use of X-rays in epithelioma as a substitute for operation. This warning should not apply to the physician or surgeon who uses the rays either because operation is inadvisable, impracticable or meets positive objections from the patient.

Pancoast (10) advises excision of malignant growths prior to the use of X-rays. This, or curettage, almost always desirable if permitted. He also refers to apparent cures followed by relapses. So it is with the operated cases.

Gibson (11) states that superficial epithelioma and the type known as "rodent ulcer" find almost a specific in X-rays properly employed, and does not advocate routine operating preceding treatment save in cases where drainage must be established.

Gibson (11) reports good results in epithelioma. Pfahler (12) records case of epithelioma of lower lip and submaxillary gland involvement rendered operable by the disappearance of the gland trouble under X-rays. Why the lip trouble did not yield is not stated. Dunn (16) also reports favorable results in epithelioma. Allen showed at New York Derm. Society (17) case of multiple epithelioma cured by the X-rays.

As to recurrences, the thoroughness and strength of treatment, proper care and, if needed, adjunct treatment, must all be employed. Improper treatment often causes the very condition we desire to kill.

Endotheliomata of face (Gibson, 11) may shrink under X-rays, either temporarily or permanently .

As so well known to the majority of X-ray workers, carcinoma of the breast (11) is only temporarily and partially improved by this method of treatment, but Morton (25) has reported cases of breast, axilla, etc., apparently cured by the external application of X-rays (and radium) together with fluorescence internally by the administration of fluorescin, radio-active water, or bisulphate of quinine. Where cases are inoperable or recurrence happens, X-rays are indicated, and it is well to employ internally these fluorescing substances.

Tubercular glands of neck and also Hodgkin's disease reported by Dunn (16) as having been satisfactorily treated. Finch and Allen (17) showed cases of Hodgkin's disease successfully treated.

Pre-cancerous conditions, as flat, semi-warty slightly infiltrated, at times eroded, epithelial, crusted or scaly, conditions on back of hands as well as on the face and neck, seen especially in florid-skinned people, much exposed to the weather, yield beautifully to X-ray treatment.

It must not be forgotten that mild prolonged or short strong exposures of the skin or incomplete action of rays may actually produce epithelioma.

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DISCUSSION ON DR. HUTCHINS' PAPER.

Dr. H. R. Slack, LaGrange: I enjoyed very much hearing Dr. Hutchins' paper. We all know that Dr. Hutchins was one of the pioneers in X-ray treatment in the South. I have seen some remarkable results from his treatment. I believe the first case he worked with came from my town. It was a hopeless case of epithelioma. Dr. Hutchins attacked it with the X-ray and apparently cured it, and the man lived three or four years and suffered very little pain. Unfortunately he was not a very temperate man, and after going on a spree the epithelioma seemed to return, from which he died.

I had a case of epithelioma of the lip in an old gentleman, which apparently yielded for a time to the treatment, but after four or five months I did not seem to make

any advance, and I told him that I would not continue to treat him unless he saw Dr. Hutchins. Dr. Hutchins asked me if I had ever burned him, and I told him that I had not. He suggested that I take him back and burn him, which I did, and three or four months later I burned him again, and he has remained cured until this day. Some will yield to this treatment and some will not.

CROUP AND MEMBRANOUS CROUP.

By SAMUEL A. VISANSKA, M.D., Atlanta.

Three years ago, when this Association met in Savannah, I had the pleasure of reading a paper on membranous croup or diptheritic laryngitis, and you will perhaps ask yourself, why I have chosen the same subject. The answer is, that, in my opinion, the general practitioner does not give this particular subject sufficient thought, study or attention, and hence a number of errors of diagnosis are made, proper treatment is often given too late, and lives that could be saved are no doubt lost in this way. Children have suffered from these diseases from time immemorial, and until recently we were unable to make a differential diagnosis or treat cases successfully. The bacteriologist tells us that in treating membranous croup we are dealing with the Klebs-Loeffler bacillus of diphtheria, and that other organisms (the streptococci) are often found with the Klebs-Loeffler. The spasmodic form is usually due to taking cold, changes in the weather, kicking off the cover, etc. There seems to be a predisposition in some children, especially those suffering with catarrh of the upper air-passages, scrofulous, weak, anemic children with proneness to coryza and to inflammatory affections of the tonsils, are more especially liable to attacks of pseudo-croup. In membranous croup my experience has been that the healthiest child in the house is usually stricken, they are usually stout and chubby, with short necks. Being called to a case, the first thing we

must do is to distinguish between false, or spasmodic croup, and true or membranous croup, and from the history of the case and symptoms present we are to decide. Spasmodic croup usually comes on at night and suddenly, the cough is dry and barking, there is hoarseness, the child is restless, wants to be taken up and held upon the arm, there is little or no fever, and with proper treatment in from twelve to twenty-four hours the patient is entirely well. In membranous or true croup of course the only positive proof would be the finding of the Klebs-Lœffler bacilli, but in laryngeal diphtheria it is difficult to obtain the membrane unless coughed up. Constitutional symptoms are usually absent, partly on account of the protection afforded by the very numerous mucous glands and the supply of lymphatic vessels. These vessels connect with the bronchial glands. The main danger comes from the mechanical obstruction to respiration and the extension of the disease to the bronchi. In uncomplicated cases of membranous laryngitis excluding the ascending ones, there is little or no fever, and I desire to impress upon you the fact that the onset of the disease is gradual, and that it grows progressively worse; the membrane is seldom seen, because it is below the epiglottis and it is difficult to get a laryngeal picture; there is hoarseness, and after a short time complete aphonia, the stenosis is at first slight and present only on inspiration. As the disease progresses the inspiration becomes more hurried, with dilatation of the alæ nasi and recession of the chest. The skin and mucous membranes are of a blue or leaden hue, there is great restlessness, the eyes seem to have a bulging appearance and the face a most pitiful expression, almost begging for oxygen. If nothing is done to relieve the obstruction, in a short time the child dies from asphyxia. Such is the sad picture usually presented

to us at the bedside, and it is our duty to be able to relieve these little sufferers. When I am called to see a case of croup, which is usually at night, unless I find the symptoms warrant a more radical cure, I treat them all alike; that is, for false croup I order the following prescriptions; calomel gr. ½, soda bicarb gr. ½, salol gr. ¼, every half-hour until four doses are taken. For the croupy cough and for its relaxing effect I give apomorphine hydrochlorate gr. 1, acid hydrochlor, dil. min. 30, syr. senega dr. 4, syr. pruni virg. oz. 1½, aq. anisi q. s. oz. 4. A teaspoonful every two hours for a child three years of age is ordered, or another preparation which I am very fond of is, potassii carbonas grs. 4, vin ipecac dr. 3, spt. chloroform dr. 2, syr. pruni virg. oz. 1, aq. anisi q. s. oz. 3, one dram every two hours. A cloth wrung out in cold water is applied around the throat, with a dry cloth on top; this is repeated every hour. Another useful adjuvant is medicated steam; the child is placed under a tent, the medicated steam, which consists of carbolic acid, turpentine and eucalyptus oil, or menthol-camphor, is passed from a Holts croup kettle. One steaming usually suffices if you are dealing with false croup, but in membranous croup it has to be repeated according to circumstances. When you return in the morning and find your patient very little or no better, the cough of a deep barking or rasping tone, hoarseness progressing, anxious expression, then what is the next step? By all means use antitoxin and give a large dose. To a child two years of age with progressive croup I do not hesitate to give three to four thousand units, and the dose should be repeated every eight hours if necessary. If you are called to a case of croup of two or three days' standing, as we are in most cases, and it seems to be of a malignant type, use at least five thousand units the first dose. In all these

cases we should be governed more by the severity of the disease than by the age of the patient. I wish to repeat again, that unless you use antitoxin in these cases you are guilty of criminal negligence. In the meantime the child should receive concentrated, nourishing food, and if the pulse gives indication of a weak heart, strychnine and whiskey should be given; it is surprising the amount of whiskey these little patients can stand. If there is constipation give calomel and use enemata to cleanse the lower bowel. After employing this treatment (or if you are called after the disease has progressed for several days), suppose we find in the place of the membrane becoming detached, respiration easier, and hoarseness decreasing, the reverse state of affairs, with symptoms of aphonia, hurried respiration, cyanotic face, retraction of the ribs, etc., what step shall be taken next? We must choose between two operations—intubation and tracheotomy. My mind is so made up between the two that I seldom consider the latter, though bear it in mind in case circumstances call for it; that is, if intubation does not relieve the stenosis immediately, tracheotomy should be performed at once. Intubation or the procedure for the relief of dyspnea depending upon croup was first employed by Bouchut of Paris, in 1858, but it is due to the careful work of O'Dwyer of New York, that the operation has become recognized as a legitimate procedure in the treatment of the symptoms arising from laryngeal obstruction. Having performed intubation successfully a number of times I can recommend it to every physician, and with proper fitting tubes believe little injury can be done. With the proper amount of experience the operation is over in a few minutes, the child breathes easier, cyanosis disappears and in a short while the little patient, almost exhausted, falls asleep. The instruments I use are

the latest made by Ermold of New York. The tube can remain in the larynx for seven or ten days or longer without any discomfort to the patient, as the longer it remains the more accustomed the larynx is to the foreign body. After inserting the tube the question arises how to feed the child? If the food is given with the child sitting upright it will run into the larynx, causing the child to cough and possibly the expulsion of the tube. To overcome this difficulty the head of the child should be held over the nurse's arm and lower than the body, so that the food will not run into the larynx. Only concentrated food should be given, and even then it should be semi-solid. Ice cream is the ideal nourishment, but milk, soft custard and gelatine can be given in this way. Some times we will find a patient so sensitive that food can not be given in this manner; then we must resort to rectal feeding. Before the introduction of antitoxin, treatment by inhalation was almost universally adopted, and the fumes most destructive to the Klebs-Lœffler bacilli are those generated by the sublimation of calomel, and even to this day many physicians use it with good results. Usually forty to fifty grains is sufficient, and it should be burned every two or three hours, according to circumstances. This treatment was first suggested by Corbin of Brooklyn. In conclusion, will state that we should try as soon as possible to make a diagnosis between simple and membranous croup; that if antitoxin is used early in the latter disease there will be very few intubations performed, and the death-rate will be reduced from 80 per cent. to less than 15 per cent.

DISCUSSION ON DR. VISANSKA'S PAPER.

Dr. E. C. Cartledge: I remember the first case I ever saw treated with antitoxine, and I was disappointed with it. Another case was very severe, and we did an intuba-

tion with very happy relief. Late in the night I was called again, and as my health was bad at the time I got the other doctor to go out, and he found that they had removed the tube. The child was picking at it, and the woman waiting on the child kindly pulled it out of the throat, and when the doctor got there the child was about to breathe its last.

The large dose of the antitoxine the Doctor suggests has proven in my hands the thing to be used. Have wondered, however, if we don't often overdo the treatment. I remember in one family one child was intubated and died from heavy toxemia. Three other children took the disease, there being four in the family, and the next child was given 2,000 units, and in a week it got all right. The next child was given 3,000 units and it got well. The next was given 4,000 units, and it seemed to antidote the disease on the spot. These were only three cases, but they seemed to me to be great evidence of the virtue of antitoxine.

One child Dr. Visanska saw with me, and the litttle sister was taken, and was given 4,000 units, although there was a temperature of only one degree, but with characteristic redness of the throat. The child immediately broke out with purpura hemorrhagica. I do not know whether this had anything to do with it, but following this there was an endocarditis set up. It seems now to have recovered entirely, but it is a question if we can give too heavy doses of this antitoxine to start on. We should probably measure it by the conditions which are present, and I would like to ask for some advice on this.

Dr. J. W. Duncan: A number of years ago the subject of antitoxine was brought to the notice of the profession. I read everything I could get on it, hoping trusting and praying that we might have a remedy to combat this

disease. I had had quite an experience with diphtheria. The first case I had after that I got some of the serum and used it and the patient died. I have seen a number of cases with other doctors, and they used it and the patients died. I have seen one case with Dr. Murphy, and we used the antitoxine and other remedies and the patient got well. I agree with Dr. Visanska almost entirely in his paper until you come to the serum treatment. I believe in calomel, bicarbonate of soda, and other remedies, and I get good results. In place of the apomorphia I have been inclined to use veratrum, and I get good results. In almost any croup this is a good remedy if you give paregoric with it. When you come to treating cases and relying upon the serum treatment, I can say the same for you that you can say for me. I use the serum, but I do not punish the child with it unless the parents are willing to have it used. I have watched for good results from it, but failed to see them.

I remember one case where the doctor told me he had a case of diphtheria. An agent for antitoxine happened to be in my office at the time, and said that he would furnish all antitoxine for the case free of charge. We went out and decided that it was a genuine case, and he gave two or three thousand units. I insisted upon giving other remedies. He said he would try the antitoxine alone, as he wanted to give it a fair trial. We went back the next day and saw that the child was worse. The doctor insisted upon giving another dose, but when we went back the next day the child was dead. That has been my experience with the antitoxine serum. I have not seen the slightest benefit from it. Many doctors here have seen the same results. The doctor who relies upon this alone is guilty of criminal negligence.

Dr. H. W. Terrell: I have enjoyed the paper very

much, and call to mind a case I saw a few years ago. The case was rather peculiar to me. I was called up at night and told of the child's condition. It was a case of spasmodic croup, and when I got there the child's temperature was 103. I gave calomel as usual, but instead of using the apomorphia, I used instead a prescription which I have; for a child five years old I give five grains of chloral, three grains of bromide of ammonia and two grains of bromide of potash. Of course, I decrease the dose as needed. It is very seldom that we have to repeat oftener than twice.

I thoroughly agree with Dr. Visanska as to the antitoxine. I have never had any bad results from it, and it has certainly proven satisfactory. I do not recall losing a case where the antitoxine was used, but I do recall a case that was lost because the antitoxine was not given soon enough. I have been fortunate in not having to resort to intubation or tracheotomy.

Dr. M. A. Clark: I wish to endorse Dr. Visanska in his paper. It is an excellent paper, and the treatment outlined is very good. I am not in the habit of using the apomorphia. I have been using large doses of quinine. Where this can not be used I use the subsulphate of mercury. If I see the case before the child gets croupy I give four grains of quinine, and this relieves in an hour. The first few times it was questionable as to whether that really did the work, but I was so unfortunate as to have it brought to my home. My little children are liable to croup, and I thought at first that I would rely upon the turpeth-mineral, but the relief was uncertain until I used the quinine.

As to the treatment of croup, the remedy is the antitoxine. If I had a case to-day and did not give it, I would consider that I was guilty of negligence. Do not wait to

corroborate your diagnosis, but as soon as you suspect the diphtheria, give the antitoxine. It will not do any harm, and do not be afraid of it.

Another thing, you must not expect your antitoxine to cure your cases of mixed infection. Your antitoxine will not cure such cases, as they need the antistreptococcic serum also.

In giving the antitoxine, do not be afraid to use it. Give 2,000 units in a child six months old, and if you do not get results in eight hours, repeat it. If you give it you need not necessarily use the other treatment. There is no objection to some of the cleansing preparations. If you have the mixed infection, give the antistreptococcic serum also, and you will probably save some of the other cases.

Dr. St. J. B. Graham: I want to endorse Dr. Visanska's paper, and I want to say that you should not wait for a diagnosis to give antitoxine. We know that in twelve hours membranous croup will frequently be beyond the use of anything. I have had happy results with the use of 1-5000 solution of adrenalin chloride. It has been good for some cases in the last three or four years.

In regard to the dosage of antitoxine, do not be afraid to give large doses. I had a case that was given 25,000 units in forty-eight hours. The patient recovered, but had post-diphtheritic paralysis of the tonsils. Another physician was called later, and he said that probably it was the antitoxine that caused it. I saw the family later and I told them that the patient lived with the antitoxine, and without the antitoxine would have been buried.

Dr. Aycock: Being a country practitioner, it has been my experience to see but two cases of membranous croup. The first case lived about a week and died very promptly. The second case had been going for about a week and the

patient was at death's door. Was in a comatose condition and I told the family what to expect, but in the meantime I had telegraphed for some antitoxine. That was Friday night, and the next morning I gave 2,000 units and the patient sat up in bed Sunday morning, and the following morning was running about the house, and after that was all right.

Dr. McArthur: I am very much interested in this, and I agree with Dr. Visanska that it is the most serious disease that we come in contact with. I heartily concur with him in the use of the antitoxine. I want to state that my observation has been that physicians in the rural districts do not equip themselves and keep the antitoxine on hand, as they should and can. As now prepared it can be kept for quite a length of time, and can be sent back to the manufacturers if not used. I do not hesitate to give it, and I give it promptly and in large doses, and I repeat it in six hours. If given early and in large doses, I believe you will get results. I want to say to the physician who is not located in the large city that if you will get it and keep it on hand and try it, you will get results.

As regards the use of the antitoxine, as a prophylactic before the manifestation of the disease, I know it is recommended and use it, but I don't know what is the custom of the profession.

I am very much interested in this paper, and agree with it heartily.

Dr. Cunningham: It was my pleasure to have service in the Willard Parker Hospital in New York. Where so many cases have been observed, it is hard to say that it is of no value. As to the dosage of antitoxine, we should be sure to give enough. The minimum dose is 5,000 units, and 8,000 units is given in the Boston Hospital, and no bad results. The question of antitoxine must

be considered at the very outset. If you wait until the third day the antitoxine is of very little value. If you have a case in which you think you can not get the effect of the antitoxine quick enough, give it intravenously. I have seen 20,000 units given this way.

The doctor mentioned feeding in tube cases. This is done in the Willard Parker Hospital by wrapping the child in a sheet and using a catheter. There is no need to use the rectal feeding after doing this.

As to leaving the tube in, it should not be left after five days, as you will get granulations and you will have a fertile field for post-stricture of the larynx, which is a serious condition to deal with.

The point in the treatment is to give the antitoxine at the outset, and give big doses.

Dr. M. McH. Hull: I really did not know that there was anybody who did not believe in antitoxine. I have had quite a large series of cases of diphtheria, and my whole treatment is antitoxine, with some spraying of di-oxogen and keeping the emunctories open. I have seen a large series of cases without death, except in one instance. This was on the eleventh day; the case was in another town, and tube was inserted, and I want to stress what Dr. Visanska intended to say, and that is, the after-treatment in these cases, and that is, in not letting them sit up too soon. I told the mother of this child not to let the boy sit up, as the only danger was in the possible heart failure. However, that afternoon she allowed the child to sit up and it died of heart failure.

Dr. W. S. Kendrick: I believe this is the first time, with one exception, that I ever opened my mouth in the Association of Georgia. I have only a word to say in regard to the antitoxine. The success or non-success depends upon a correct diagnosis. My friend, Dr. Clark,

preceded me a little bit. If you have genuine diphtheria in which the bacilli are found, the antitoxine should be used, and many will die if it is not used. On the other hand, my experience has demonstrated that with the administration of the antitoxine alone is of no value when you have cases of streptococcus diphtheria; that is, in addition to finding the diphtheria bacillus with the microscope we also find the streptococcus. There is a considerable difference between the genuine diphtheria and the streptococcic. In the genuine the temperature is variable and usually does not go very high. On the other hand, the temperature in the streptococcic diphtheria is very grave, and instead of living for five or six days, when it extends into the larynx and the nasal spaces they die on the second day, overwhelmed with the toxemic conditions. I have seen these cases, and where we have a typical streptococcus the antitoxine is valueless.

Dr. Claude A. Smith: The exact value of antitoxine in the treatment of diphtheria is certainly an unknown quantity at the present time. If you will but consider the discussion to-day you will be convinced that it certainly does not support all the claims made for it. We are sure that it is not a specific for the disease. You may notice from this discussion that one doctor uses the antitoxine and nearly all of his results are unsatisfactory; another one uses it and most of his results are good, while his failures are attributed to the fact that he was unable to begin the treatment early enough, or did not give sufficiently large doses. One tells us that you can not get good results if you wait too late to use the antitoxine, and the next minute another tells us of saving a case in which the antitoxine was not used until the last minute. Still another informs us that the failures to obtain good results are due to streptococcic infection. Therefore, it is

very evident that there is not a unanimity of opinion among the profession as to the value and use of this antitoxine. It is supposed to neutralize the toxin of the diphtheria bacillus and to prevent the paralysis following the disease; and yet we see cases treated by the recognized method with the antitoxine and severe paralysis follows.

In the beginning the use of the antitoxine seemed to give remarkable results in the treatment of diphtheria, and from the statements of reputable men I accepted it as a specific for diphtheria. However, since then I have had opportunity to investigate it for myself from an unbiased standpoint, and it certainly does not fulfill all the claims made for it. This fact was first forcibly brought to my attention by Dr. Welch, of the Municipal Hospital of Philadelphia. He told me that his experience with the disease covered a period of thirty years, and during this time he had seen on an average of 1,200 cases annually, and his results before and after the advent of the antitoxine did not seem to him to support the claims made for the antitoxine.

In regard to the great reduction in the mortality of diphtheria since the advent of the antitoxine, I would call attention to the fact that this can be accounted for to a great extent by the improved methods of diagnosis. In former days membranous sore throat was called diphtheria only when the inflammation was severe and there was profound intoxication of the patient. At the present time we recognize many cases of mild membranous sore-throat as being diphtheria, but formerly these cases were not called diphtheria as the patient was able to be up and about in many instances and not feeling very sick. The fact that these cases are now recognized as diphtheria would alone reduce the mortality statistics of the disease to a remarkable extent.

In regard to the presence of the streptococcus in the diphtheritic membrane, it is not possible for any man to say just what part these streptococci play, if any, in the production of the inflammation. At the college it is a routine work to have the class in bacteriology in the dental department to examine the saliva of each member of the class, and in the majority of mouths the streptococcus is present, and yet it is not producing any inflammation. And so, this being true, when we find the streptococcus present in the mouth of a person suffering with diphtheria, we can not be sure that it is taking any part in the production of the inflammation.

I am waiting to be convinced of the merits or demerits of the antitoxine. As long as it appears not to produce any bad results, I would advise its early use in every suspicious case even before the bacteriological report is received from the microscopist. The experiments indicate that it is of some value, but a careful investigation convinces us that, to say the least, it is not a specific for diphtheria in human beings. The physician who blindly administers it in every case expecting improvement, or curative results, has many disappointments in store. The results following the administration of the antitoxine should be viewed with a critical and unbiased eye, and in this way the profession should endeavor to ascertain its real value. We are too prone to exaggerate the good results, especially in such a severe disease as diphtheria was in years past.

Dr. Kennedy: As the subject has already received such extended discussion, I feel reluctant to take up any more time. However, I feel that a disease which is so serious and disastrous as membranous croup deserves careful study. I have had no experience with antitoxine, and, therefore, have nothing to say against it.

I want to relate an experience of mine in a case recently. Before I began to use this prescription I believe that 75 per cent. or 80 per cent. of the cases died. Since then I have seen only one die. The prescription I use is five ounces of glycerine, one ounce of sulphurous acid and one and a half ounce of sulphur, well shaken, and a teaspoonful given every half-hour. You may feel that this is some old woman's remedy, but it gives good results.

Dr. Visanska (in closing): I am sorry that some have had such bad results in the use of the antitoxine. As long as I get good results I will continue to use it. I never select my cases, but take them as they come to me, and I don't think I have ever lost a case of diphtheria or membranous croup. Any man who will read the report of the New York World and then not use the antitoxine should not treat diphtheria. They have gotten the death rate as low as four per cent. They have thousands of cases in New York where we have one. I believe that most all of us believe in the use of the antitoxine, and I hope we will be able to convert the rest.

As to leaving the tube in for eight or ten days, I said this could be done if necessary, but we do not usually do it. If the antitoxine is used early you can remove the tube in a few days, and I only mentioned that you could leave it in if necessary. I remember one case in which we had to leave it in for six days, which is quite a long time after using the antitoxine.

There is one point I want to bring up, and that is the danger of mothers treating croup of any kind. One case I remember the child had been accustomed to having croup, and it had croup one day and the mother thought it was the kind the child usually had, and the case went along for three or four days and the child got so bad that the lady sent for her family physician, and this physician

recognized the disease at once, but the child was then in almost a dying condition. Of course the parents felt bad about it, and said they would have had a doctor there sooner if they had only known. The doctor gave antitoxine, and called me up over the 'phone and said he wanted me to come out and intubate. I went out, taking the intubation set, but before I got there the child was dead. We should impress upon the parents not to depend upon themselves to diagnose the disease.

Another point, sometimes physicians will want you in consultation, but will wait until the last minute. I was recently called to intubate a case of six days' standing, and the child was almost in a dying condition. When the membrane begins to obstruct the larynx, the increased labor of the child in trying to breathe is something enormous, and it will almost exhaust itself before there is complete obstruction. In one case I intubated and in a minute the child was breathing easy. I administered strychnine and the child lived until the next morning. If you are going to use a remedy you should use it in time. I am glad to say that my results are almost perfect. I do not say that I cure all my cases, but in membranous croup and diphtheria I have perfect results.

CLINICAL SIGNIFICANCE OF THE ASPECT OF THE TONGUE.

By ALBERT A. DAVIDSON, M D., Augusta.

Its position, peculiar structure and its functions furnish obvious reasons for looking to the tongue for indications of diagnostic and prognostic value. In part, the anatomy of this organ of the vestibule of the alimentary tract presents a body of peculiar muscular arrangement; a vertical septum, marked by a raphe on the dorsum and a frenum on the under surface, divides it into lateral halves. It is freely movable and is capable of extension and retraction. About its base, among and beneath its muscles, are three sets of glands which open through into the mouth on its under surface by means of ducts. In the inter-fascicular spaces are fat and delicate connective tissue in which are numerous lingual glands; in the intermuscular spaces of the tongue is fat, with blood-vessels and nerves. The mucous membrane of the mouth is reflected over the tongue, entirely investing its free surface, and forms its most conspicuous part. That covering the sides and under surface is thin and smooth, like the lining of the mouth throughout, and contains small papillae and many mucous glands (Piersol). On the dorsum near the tip it is thin, somewhat irregular and intimately joined to the muscular tissue, which it overlies; posteriorly it is thicker, looser and more conspicuously irregular in appearance. This roughened aspect is because of projections of the connective tissue of the mu-

cous membrane, which are the papillae, and of which there are three varieties. The largest in size, and least in importance to the clinician, are eight or ten in number, arranged in a V form at the back part of the dorsum of the tongue, their form suggesting the name—circumvallate papillae. The fungiform papillae are smaller and thinly scattered over the tongue, and are easily seen among the conical or filiform papillae, which variety is very numerous over all the upper surface. Scattered over the whole surface of the tongue are openings of ducts from the mucous and serous lingual glands of the submucous tissue. Squamous stratified epithelium forms the outer layer of the mucous membrane of the tongue.

The filiform papillae, by reason of their hair-like processes and epithelial covering, give to the tongue's surface a whitish cast. In health the tongue is moist, being bathed by the gland secretions, which, in twenty-four hours, amounts to twenty ounces or more. A habitual mouth-breather may, however, present a dry tongue.

The normal tongue presents a moist, whitish, granular, symmetrical appearance, while lying within and just filling the space formed by the lower dental arch, or when protruded for inspection. A departure from this state now engages our consideration. The variations from the normal aspect of the tongue may be in point of form, size, movement, color, humidity, coating.

The form may be changed when the tongue is protruded, to point to one side. This, most naturally, would mean a paresis of the side of greatest volume, and a lesion at or affecting the lower end of the fissure of Rolando on that side to which the tongue points, which is the site of origin of the motor nerve of the atonic side. However, an ulcer on the lesser side may explain the asymmetry. In general hemiplegia the protruded tongue always

points to the side of the site of the lesion, if the lesion does not occur below the pons.

A change in the size of the tongue is usually because of disease of the organ itself. Though in anemias, cachexias—as malarial—in general enervation and in atonic forms of dyspepsia it is flaccid, broadened and receives and retains deep impressions of the teeth. While in irritable dyspeptic troubles it is narrowed and pointed. In exhausting sickness and in depletion it presents a shrunken look, due to lowered arterial pressure, absorption of its fats, etc.

When the tongue is difficult of movement and slow to be protruded—with crippled or poor articulation—cerebral disturbance or lesion of grave importance, as bulbar paralysis, is indicated. When slow of protrusion, tremulous and indifferent of retraction, a typhoid or adynamic state is thus expressed. Then the patient's faculties are off guard, and very wide-awake should be the nurse or attendant.

The color of the tongue varies in appearance. It is pale in anemia and debility, and where there is enlarged spleen, and indicates the lack of red matter in the blood. In scarlet fever the fungiform papillae show distinct and red through the fur on the tongue, which, soon thrown off, leaves them yet more prominent. While this is known as the scarlet fever tongue, it is seen in other acute febrile affections. In acute throat diseases the tongue is commonly red. The dry red tongue—glazed or beefy—shows where earlier in the course of the given disease there was an exfoliation of the superficial cornuous layer of the epithelium, together with many of the papillae it covers, the malady continuing in not lessened severity; it evidences failing nutrition. In mitral insufficiency, producing pulmonary hyperemia and in extensive

pneumonias, or in any condition causing venous engorgement of the alimentary tract, the tongue is cyanosed. Jaundice shows plainly along the margin of the tongue on its under surface.

In chronic dyspeptics there may be the red, irritated tongue; indeed, it is possible for dyspepsia to produce chronic glossitis. This may somewise argue for the theory of Matthiu & Roux (*Gaz. de Hopit.*, 1903,) regarding the aspect of the tongue in disease, that as the structure of the tongue is much as that of the skin, which sometimes evidences, by rash or eruption, a gastro-intestinal disturbance, so it responds, but by reason of its freer vessel and nerve supply, much more commonly, by a more rapid proliferation of cells to form a heavier fur; and if this be thrown off, an inflamed appearance is disclosed. Or if the coating is not formed, the papillae are inflamed and the edges are sore. The vasomotor nerve, giving radicals to the submaxillary ganglion, may have significance pertinent here. This sore tongue accompanies a form of stomach intolerance or irritability, as alcoholic gastritis. It disappears when the gastric disturbance is relieved. It should not be forgotten, though, that an irritant substance may be the local cause of a sore tongue.

Excessive salivation may be excited by nervous influence, as sight or thought of food or drink; or by local irritation, as dentition; or by the presence of a foreign substance in the mouth. But with these causes eliminated it evidences quickened gland function in the system, whether due to the effect of drug, or the nature of food taken, or to some idiopathic cause. It is the first stage of emesis (Hurst). A dry tongue means an inhibition of local or general gland secretion; though, as before mentioned, mouth-breathing may cause it, first by evaporation, which, in turn, discourages the opening of the stoma of

the gland ducts. The tongue is dry in fevers—as pneumonic, exanthematous, or typhoid—where they promise fatally. It is also in diabetes, because of the renal drain of the body fluids. There is a bare, red tongue, most often dry, shrunken and cracked, met with in septicemia —common in the puerperal type—chronic empyema, liver abscess, and in advanced phthisis. This tongue is characterized hectic (Butlin). The organ becomes hardened—board-like; sores may form on it, which will crack and cause bleeding. Should a humidity at the edges supervene, it will show that the absorption of toxic matter is restrained and that the vital forces are overcoming in the fight. Another dry tongue, lessened in size and nearly bare, where the papillae are shed like hair of the head, is not uncommon to the prematurely old or to those who are wasted in health. A somewhat similar state obtains in a disease of the organ known as xerostomia.

Fissures in the tongue often have no clinical significance; the patient may not remember when they were not present. Butler thinks they are sometimes the result of chronic liver trouble, chronic dysentery or diabetes mellitus.

"Fur on the tongue," says Butlin, "whether in health or disease, is composed partly of epithelial scales and of debris of food, but especially of micro-organisms." These organisms are always found entangled in the layers of the epithelial cells *on* the hair-like processes of the papillae, seldom in the depressions between. They are not found on the fungiform, and rarely on the circumvallate papillae. It is shown that when the coating is thin and scraped off, large numbers of the papillae are removed; but when the coat is thick and spontaneously thrown off, micro-organisms are chiefly shown. DaCosta holds that the loosened cell-scale covering of the papillae, when

sticky, wraps around the hair-like processes and in being scraped off, in the act of mastication, elongate the processes and so give the furred appearance to the tongue, implying that this glutinous property of the epithelium is because of faulty function of the glands, which, in turn, is because of a deranged state of the system. It is easily shown that debris of food engages in the filiform processes and adds to the furry coat. It is well to say here that the character of the food or drink may alter the color of the fur, misleading the attendant to believe it due to a suspected disease. The tongue, lightly furred in health, easily becomes heavily coated in many disorders of the system—especially of the digestive system. In acute general diseases, as is their severity and the effect of their ravages upon the vital combative forces of the body, so is this coat darker, heavier and dry. In an acute sickness—as pneumonia or typhoid—usually, the tongue, moist, light or yellowish at first, becomes, as the illness progresses, dark-brownish, more heavily coated and dry, as the gland activity of the body is lessened; thus evidencing a depraved state of the system and the exhausting effect of the disease. It is not a good prognostic sign. But a brighter prospect may show. The margin of the tongue may now become moistened slightly, the tip clear; gradually down the center comes a break in the coating; the mucous glands beginning work again, moisten and loosen the covering; it is thrown off and the tongue appears fresh and clean, to indicate a returning general gland activity. The dry tongue without coating may follow to point to a reinvasion—in the lung if it be a pneumonia, or more involvment of the intestinal wall structure if it be enteric fever. There is here no coating, for an interim sufficient has not been afforded for new epithelial growth and bacterial lodgment on the papillae

processes, nor is there much food passing over the tongue to lend to the coating. This is the dry relapsing tongue.

Primarily a coated tongue would suggest nonuse, as it is by its constant rubbing against the hard palate; by the passing over its surface masses of food in the act of chewing, that epithelial cells accumulated to entrap bacteria and collect food residua, are otherwise kept wiped off. Hence on seeing a coated tongue an anorexia, or a forced abstinence, might be presumed. If the lining is unilateral an ulcer might account, or carious or missing teeth on the coated side, or yet a neuralgia of the lingual branch of the third nerve; any of these could account for a one-sided furring. But the clinician sees the tongue where there is appetite—where food is daily masticated and digested; where the teeth are sound, when it is lined with a heavy brown fur—without dryness; the patient thinks he is bilious; a cholegog cathartic given often produces a more marked furring, presumably because of its irritant effect upon the stomach and duodenum; after which the coating disappears.

It may be, as is maintained by many, that the coated tongue is only from nonuse, and can have but indirect significance to the clinician; it may be, as Dr. Dickinson (Lumlean Lectures, London, 1888.) avers, that the appearance of the coating—the parasites, which he claims form the bulk of the fur—is of secondary interest; that they are "the fringe of the garment and not the garment itself;" these things may be, and with reason; but it is not denied that this coating *is of* significance, though secondary; and we know that it is easily seen; is common to certain presumable conditions; that its changes attend varyings in the given condition. Because of these things, we may not lightly ignore it. It is worthy to be called a symptom, which, taken alone, may be, and too often is,

unreliable, but which, with other attendant signs and phenomena, does have clinical significance. "It is by the aggregate and succession of symptoms that disease is detected" (Dunglison). Faulty elimination of the products of metabolism may be mirrored on the tongue, which accumulates its old epithelium and is slow to throw it off. Changes in the blood affect its coating by lessening the gland activity and diminishing the watery element, the secretion is viscid and holds the cells, adds food detritus and encourages multiplying of bacteria. When all gland function is stopped the moisture is quickly evaporated, the lining dries; the tongue itself becomes shrunken and board-like. These changes, most often met in typhoid fever, are common to the typhoid state, which may supervene in any acute infectious disease as an expression of the toxic state of the system.

Diseases of the tongue and their effect on its appearance have not been dealt with in this paper. From the study of its clinical aspect in other disorders we may safely conclude: that it *is* an aid to diagnosis, but of inconsistent value; that its greatest value as a symptom is to indicate the progress and promise in the given disease. The observant physician's greeting, "Put out the tongue," implies "How are you to-day?" and the protruded tongue, though silent, is expected to make reply.

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TYPHOID FEVER OF TWENTY-FIVE YEARS AGO: ITS TREATMENT COMPARED WITH THAT OF TO-DAY.

By J. L. SELMAN, M.D., Douglasville.

The subject that we shall speak of to-day, that of typhoid fever, has been so ably and forcibly presented to this Association by men of deep thought and resource at almost every meeting that we have had, that there is but little more to be said that can be of any or very much interest to the profession.

There can be no doubt that this disease has prevailed extensively from very remote periods, but its authentic history, like that of many other infectious diseases, is of quite recent date. Frederick Hoffman in Germany, Huckman in England, and others, all describe cases of typhoid fever with such exactness as to leave no doubt as to the identity of the disease.

It still remains, however, for the nineteenth century to define its distinguishing characteristics. No sooner were the problems of the semiology and mythology settled, and the conclusion generally accepted than the equal importance of the etiology of typhoid fever took their place and a discussion arose which has not been fully settled yet. The medical world has been, and still is to a certain extent, divided into two parties—those who hold that typhoid fever is not only a distinct disease, but is a specific disease having its specific poison, which is only produced by itself and only reproducing itself, but there

are some who yet think that it sometimes arises spontaneously and that mere filth will produce it.

There is nothing apparently more clear to me than that typhoid fever produces typhoid fever; it is also a specific disease and has its specific poison.

Twenty-five years ago, soon after I commenced the practice of medicine, I had to contend with one of the most fearful epidemics of this disease that we have ever had in this part of the country. The old Georgia Western Road bed that had been graded for several years was at this time being regraded, and soon after work was commenced it looked like every home in our town and surrounding country was becoming infected with typhoid fever, as well as those engaged in the work. This road runs east and west on the Tallapoosa ridge. North of this road we scarcely had a case of fever, neither in town nor in the country, but the fever extended in a southern direction, or south, for several miles; we will say that this was during a very dry season and that we had a breeze from the north most all of the time. As we only propose to speak of this fever, its apparent causes at this time, or at least what we thought to be the causes, will say that we then thought that the dumping out of decayed matter to be exposed to the rays of the sun caused a miasm that was drifted by the north wind that we had at this time to the homes of those south of this road-bed, and the reason that those north of this road-bed was exempted was because the miasm was only carried by the wind.

I will refer briefly to the experience of one family, consisting of father, mother and four children. The father of this family was sick for four or five weeks; they being very poor, we could not have bed changed as often as we would, it being a feather bed. After he was able to be up I advised the mother of the family to fumigate or

to sterilize the feathers as a preventive for herself and children, she said that as the children had all been sleeping in the same room with their father and did not take the fever she thought it useless, but that she would put the bed out to sun for a few days. A few weeks after this they moved about three miles; soon after they had moved I was called to see the children; each had typhoid fever of a very serious type all taken, so the mother said, about the same time. This being the case, I made inquiry as to what could be the cause, and the mother told me that after they moved that she had placed the bed that her husband was sick on so long on the children's bed, thinking that there was no danger after it had been out in the rain and sleet for several weeks.

At this time, as it has always been, we valued anything in proportion as to what it cost us, and as quinine was then selling at $3.75 to $4 per ounce, we thought it would be the most valuable and correct drug to give, as it was thought the fever at this time was of malarious origin, and it was given in heroic doses, often repeated, to any and all regardless of their condition, and we now think that it was often given to the injury of our patient, and as our text-books then, as now, had very little to say about the treatment of this fever; said it was self-limited and that we could do very little except guide the boat safely if we could, and if there was no serious complication that we would make a safe landing; provided, our patients had a strong enough constitution to enable them to outlive the fever.

There were three things that we then did that I wish to call your attention to most especially: 1st. Keeping the bowels bound up for several days before producing an action; 2d. The application of blisters or hot fomentations over the bowels; 3d. The giving as a nourishment

unsterilized milk, for I believe that this practice was unscientific and void of reason and that we should not give or do anything that would be hurtful to our patient.

We believe that typhoid fever produces typhoid fever. If so, how? If a germ or microbe of this fever is carried into our alimentary canal under conditions favorable for its development that we will soon have colonies of these germs and if they are left alone by keeping the bowels from acting and giving at the same time unsterilized milk, we will soon have intestinal fermentation, causing accumulation of gases and distention of the bowels, for we know that the stomach performs very little of the function of digestion compared to that of the intestines. So when we give unsterilized milk, it coming in contact with the gastric juice, it causes the casein of the milk to coagulate and pass into the small bowels in this semi-solid condition; if left alone it is a base of supply for the propagation of the germs or microbes of not only typhoid fever, but all other kindred affections.

So let us reason one with another, so if we have a sloughing and infected ulcer to treat, are we going to apply hot fomentation or some other dressing that would likely cause more infection which would result in blood poison? Or are we going to give free drainage and dry antiseptic dressings and try as best we can to get rid of the local germs of infections that is causing the ulcer to extend to more important parts? If we have the bowels or intestines invaded by the typhoid bacillus, do we propose to keep nourishing them by giving a diet that is more suitable for their development, and do we propose to let them inhabit the intestines of our patient without attacking them through the rectum as well as by the way of the stomach? No, they are one of the greatest enemies that we have in this fever and we propose to continue shelling

them with small doses of calomel, followed with salts, to break up their citadel of infection; get them on the move in this way, then meet them with normal salt solution injections, by which means we wish to soon cut off their source of supply and lessen their force and then our patient will soon be able to say: "As the cause of my fever has been greatly reduced in ranks, I feel that I will soon be as I was before being attacked by those germs."

So my treatment at this time of typhoid fever is very simple. Give as a nourishment extract of beef, predigested foods and all of the buttermilk you can get them to take, also give arsenite of copper, 1-100 grain every four hours, to prevent intestinal fermentation. I also give small doses of calomel about every other day, say 1-5 of a grain, at 4, 6 and 8 P. M., follow with salts early next morning; I also have syringe used as often as twice in every twenty-four hours. If we should have distention of the bowels give alum enema; if rectal tube is advisable and I have none with me, I detach hard rubber nozzle from tube of fountain syringe, then use tube of syringe as substitute for rectal tube. In this way we keep the lower bowels free of all fermenting or indigestible matter, and as we know any inflamed mucous membrane throws out a great deal of secretion, if there is not much else to move but the secretion as it becomes infected by the germs, we think it advisable to keep the bowels as clear of this as possible.

Every physician has some drug that he prizes more highly as an antiseptic than he does other drugs of this class. Give me arsenite of copper, for after using it for eight or ten years I have cause to look upon it as one of the best drugs of its class, and from experience I think it has the most marked anti-fermenting quality of any other drug that I have given; we also know that arsenic is a stimulant to the liver.

As for the fever, we consider it only as we would fevers of other kinds; think it best to remove cause of infection, keep down intestinal fermentation, and we will soon have the cause removed if we will only keep the bowels opened.

As for the use of ice or cold water, I prefer using it over the seat of invasion, so I have heavy towels dipped in ice or cold water and applied to the stomach and bowels. If we advise the use of ice and cold water to be applied to the scalp for meningeal troubles, expecting to get good results from their application, can't it be reasonable to expect as good results from cold applied to the bowels in typhoid fever? I also have the extremities sponged often with cold water, and give stimulant as indicated.

If we want the nourishing effect, as well as the stimulant effect, give milk punch or egg-nogg. If we have marked heart failure, we give strychnine, and let me say that I don't think it best to wait too long before commencing the use of this drug.

We do not claim that none of our fever cases die, but we do say that our present mode of treatment has given us better results than those practiced twenty-five years ago.

As proof that most of the alarming symptoms are caused by the absorption of the fermenting matter in the intestinal canals, will say that for the last few years we have had very few cases of this fever where we have had any serious nervous troubles, for we know the poison caused by those germs in the intestinal canals will be absorbed and permeate every vital organ of the human system.

THE ALBUMINURIA OF PREGNANCY.

By H. McHATTON, M.D., Macon.

Case No. 1.—White, twenty-four years, 4 para. Previous labors protracted, but normal, last six years ago. Personal history, neurotic. Began to suffer with digestive troubles about the middle of seventh month, which gradually increased to middle of eighth month.

Nov. 18. Urine 1023—normal.

Nov. 19. Urine 1023—two-thirds albumin. Headache, spots before eyes, constant vomiting, with rapid loss of strength. Calomel and soda, 10 grains each, at bedtime. Saline to follow in the morning.

Nov. 20. Urine half albumin, symptoms no better. Introduced three bougies at 8 P. M. Pains began in one hour, median forceps, delivery at 3 A. M. of 21st. Urine 1010, less albumin.

Nov. 23. Urine 1006—trace of albumin.

Nov. 26. Urine 1018—no albumin. Maximum temperature 99½. Uneventful recovery.

Case No. 2.—White, twenty-five years, primipara. Personal history perfect, about seven and a half months pregnant.

Feb. 27. Headache, nausea, spots before eyes, slight edema of legs, face, neck and hands. Urine 1020. Normal.

March 3. No improvement in condition. Urine 1015, ten per cent. albumin. (The rest of the urinary record in this case is shown by photograph in days. Specimen of

6th, 1008; specimen of 8th, six hours before delivery; 9th, about eight hours afterwards.)

On 4th, 5th and 6th unpleasant symptoms increased in spite of usual treatment.

March 6. At 6 P. M. temperature 99, pulse 124, respiration 22. Two bougies inserted. Some pains by morning

of the 7th, which continued in an intermittent manner. Two more bougies inserted at 6.30 P. M. Pains good, but complicated by rigid os. Low forceps 6 A. M. of the 9th. During the last eight or ten hours of labor there was delirium, alternating with short naps and stertorous breathing. At the time of delivery, T. 99, P. 112, R. 22.

Maximum temperature of 100 on the morning of the third day, due to retained clot. Convalescence normal.

Case No. 3.—White, twenty-two years. Previous history good up to three days ago, when she began to complain of severe headache, poor vision, spots before her eyes, etc. Swelling of face, eyes and legs were noticed by the family.

March 10. 5 A. M., had a convulsion. Dr. H. P. Derry was summoned; found about 40 per cent. albumin in urine. Two more convulsions before 10 A. M., when she was admitted to maternity ward of Macon Hospital. T. 96 2-10, P. 66, R. 20. Between six and six and a half months pregnant; os closed and rigid, complete anesthesia, manual dilatation, sufficient to admit of packing, lower segment and cervix packed with gauze; 10.45 A. M., convulsion, some pains; 6.30 P. M., convulsion, fair pains; 9 P. M., manual dilatation again; 10 P. M., high forceps, living child, which died in a few hours; 12 midnight, T. 100 2-10, P. 82, R. 26; 14th, albumin, a trace. 15th, none.

Temperature dropped to normal a few hours after delivery. Convalescence normal. Patient states that the previous three days to admission and first twenty-four hours in hospital are a complete blank to her.

Case No. 4.—White, about twenty-two years, primipara. Seen in consultation. Nothing unusual remarked by attending physician during pregnancy. Urine normal two days before confinement, which was also normal;

two hours after confinement violent convulsion, which was repeated every thirty or forty minutes until death, which was about eight hours after first convulsion. Urine about 70 per cent. albumin.

In the first three cases there were no casts at any time. In the fourth case, no examination was made of the only specimen secured.

The importance of this type of cases can best be appreciated by the fact that these four were seen in an obstetrical practice of moderate size in a period of four months. Since the practical control of pueperal fever, cases of this class are one of the most important problems of obstetrics, for on their early recognition depends the life of both mother and child.

The importance of the diagnosis of the pre-eclamptic stage is fully emphasized by the statistics of Green (Edgar's Obstetrics), which shows the maternal mortality in ante-partum eclampsia to be 46 per cent.; fetal mortality 69 per cent.; in intra-partum eclampsia maternal mortality, 25 per cent.; fetal mortality, 25 per cent.; in post-partum eclampsia mortality of mothers, 7 per cent.

In my remarks on these cases I shall confine myself to cases of this type, and not take into consideration the ten or twelve per cent. that occur without albumin, as I propose to take up that condition in a future paper.

The first and second of the above cases show conclusively that our urinary examinations are not made as often as they should be. Many valuable lives would be saved could we secure examinations or have the patients make some of the simpler tests themselves every two or three days after the fifth month.

It is also important in every case of pregnancy to secure a specimen of urine at the earliest possible period, and to make a complete examination of this specimen, so at a

later day we will be in a position to know if we have an acute condition to deal with or an acute exacerbation of a chronic disease, as it will materially influence our prognosis. The mere recognition of albumin in moderate amount is of no material significance in many cases, as it occurs very often in conjunction with no symptoms of importance and can be easily controlled by ordinary hygienic measures. These cases demand constant watching and attention, for no one can tell when we will have an explosion. Combine the presence of albumin with the symptoms and signs of a beginning toxemia and we have a most grave condition, one that will tax our skill and judgment to the fullest extent.

Our first effort will of course be to control the condition by the use of medical and hygienic agencies—all the fresh air the patient can be induced to take, the observance of the best hygienic rules, and the most important single measure in this stage, an exclusive milk diet, persistent efforts to eliminate the poison through the natural outlets, bowels, kidneys, liver and skin, by the usual methods and according to the indications in each individual case. If in spite of our treatment we find that the symptoms of the pre-eclamptic state still exist, or even increase in severity, we have only one resource left, namely, empty the uterus by the least dangerous method in the given case.

When the patient has been under observation from the first, as in cases one and two above, we can usually secure a sufficient time limit to enable us to induce labor, and, as a rule, have no convulsions. Having decided that it is dangerous to let the pregnancy continue, my rule is to give the patient ten or fifteen grains of calomel and soda at bedtime, and begin early in the morning with magnesia sulp. 2-drachm doses every two hours until ten or fifteen evacuations have been produced. Then have her

put in as good an antiseptic condition as the surroundings will allow, and under full antiseptic precaution introduce two or three solid bougies. Those known to the trade as Vermilion Olive Pointed are the best in the market for this purpose. These should be inserted to the fundus and on different lines if possible. When they come in contact with the placenta, a partial withdrawal and reintroduction will usually overcome the difficulty.

Sometimes during the required manipulations they become too soft. A few minutes on ice will correct this condition. Care should be taken to prevent rupture of membranes, which fortunately happens rarely. The patient should then be given an anodyne and allowed to rest. If there is no indication of labor within twelve or fifteen hours, two or three more bougies should be inserted in the same manner. This procedure has never failed to induce labor within a reasonable time in my experience. Should it not do so, I would remove all bougies and reintroduce them, or pack the cervix and lower cavity with gauze, as seemed most appropriate in the given case. Once pains are well established, the bougies should be removed and the case allowed to progress as any normal labor; at the same time, if all indications are not most favorable, an early forcep delivery is advisable, for the longer labor lasts the more liable we are to have convulsions.

When eclampsia already exists, as in the third case, if there is no effort at labor and the condition not grave, packing the lower segment of the uterus with gauze and waiting a reasonable length of time seems the safest course. Failing in this, digital dilatation and high forceps or version has thus far served me.

In fact, in these cases, as in all other obstetrical work,

the more assistance we can get from the natural process of labor, the safer is our patient.

We can only regard the fourth case as one of those catastrophes of the toxemias of pregnancy that is liable to occur to any of us, as no indications of the grave condition were given prior to or during labor.

In following this method of practice for a good many years, I have yet to regret the induction of labor in any case, as it has been my fortune thus far not to have to record the loss of a mother or a viable child in such cases as the two above recorded.

During the same time I have regretted the non-induction of labor in some cases, and in many others where for various reasons the proper examination of the urine had not been carried out. I have seen the explosion come as from a clear sky when nothing in our art could avail to save the life of either mother or unborn child.

THE TOXEMIA OF PREGNANCY.

By A. P. TAYLOR, M.D., Thomasville.

My object in writing on the subject of the toxemia of pregnancy is to bring this complication of pregnancy more prominently before the general practitioner. I wish to state that I have nothing original to advance, and only hope to rouse a greater interest on this subject. My observation is that we are too negligent in looking after this class of patients, trusting to nature to bring them through the gravid state—it being too frequently regarded by both laity and the practitioner as a physiological process needing but little attention. There was a day, perhaps, before the high civilization of the present, when this idea was correct, but to-day I fear we might question the correctness of this principle.

Frequently women are allowed to drag miserably through the pregnant state suffering from a toxemia peculiar to that condition, without due care on the part of the practitioner. The definition of the toxemia of pregnancy by W. H. Wells, of Philadelphia, and some others, is "An auto-infection occurring in pregnancy;" by Professor Edgar, of New York, Cornell University, "The toxemia of pregnancy may be defined as a state of the blood and metabolism arising from the hepatic insufficiency to which the pregnant woman is strongly predisposed; expressed most commonly by trivial ailments (petty morbidity of pregnancy), but exceptionally by serious, severe and even pernicious affections, such as acute yel-

low atrophy of the liver, pernicious vomiting, eclampsia; conditions which while once thought to have nothing in common now seem to be closely related."

The theory of a specific toxemia of pregnancy is now accepted. I shall not go into, except in a general way, the etiology, pathology and symptomatology; I will speak of the grave conditions, eclampsia, pernicious vomiting and acute yellow atrophy of the liver; also anemia, mania, hysterical conditions and gastro-intestinal disturbances.

The liver is probably the greatest factor in producing the toxemic conditions of pregnancy, the pregnancy itself producing a greater tax upon the liver. That organ, presiding over anabolism, plays an important part in the development of the fetus. Suppressed menstruation produces congestion of the liver, increasing the tension and drain upon that organ.

To this may be added in the production of the toxemia previous pregnancies and the heredity of hepatic insufficiency. In the pathology of the toxemia of pregnancy the changes chiefly affect the liver, kidneys and spleen, other organs being occasionally involved—these conditions producing hepatic insufficiency; the liver being the chief organ for the elaboration and purification of the blood, any insufficiency produces a corresponding interference in metabolism; this improper action of the liver throws an extra burden upon the kidney and spleen, and these conditions besides create a toxemia and also prevent the elimination of the poison.

The symptoms of the toxemia of pregnancy are hysterical conditions, exceptionally mania and anemia, and tenderness over the epigastrium and right hypochondrium, increased hepatic dullness, nausea and vomiting, gastro-intestinal disturbances, and a lessened quantity of urea, irascibility, peevishness, insomnia, agitation, ede-

ma, convulsions and cutaneous eruptions. The toxemia of pregnancy is divided into fulminant, acute, subacute and benign forms.

The benign form is a mild expression of the autotoxic state; the symptoms of this condition are vertigo, nausea, simple vomiting, constipation and anxiety. The treatment for this condition is partially that given below for eclampsia. The fulminant type is always fatal, sometimes producing death suddenly and frequently within twenty-four hours. Its symptoms are those of acute yellow atrophy of the liver and is practically the same disease. Acute toxemia of pregnancy is very nearly always fatal, the brain and nervous centers becoming involved, producing agitation, insomnia, mental confusions, convulsions, maniacal excitement, coma and death. These conditions may occur without warning and occur in women of robust health, as well as those of delicate physique. Its treatment, although of no avail, is that given below for eclamptic conditions.

I do not remember ever to have seen either of these conditions in my practice.

The subacute type is divided by authorities into eclampsia and hyperemesis. I am very much inclined to the opinion that hysterical manifestations, mania and anemia should be more emphasized in speaking of the subacute type and not spoken of as manifestations of the two types, eclampsia and hyperemesis.

CASES IN POINT.

I attended a patient through the gestation period who belonged to a neuropathic family, having severe nervous symptoms from the beginning of the pregnancy and about the fourth or fifth month she developed mania, which lasted about one month; the nervous conditions continued until the end of pregnancy. One week after delivery she

again developed mania, which lasted probably one month, not having had the slightest evidence of convulsive symptoms, vomiting, albuminuria, and in no other way gave evidence of anything approaching the eclamptic or hyperemesis types. In another case of hysterical conditions, which belonged to a neuropathic family, from the beginning of pregnancy to the end had hysterical vomiting, insomnia, restlessness and abdominal muscular contractions, presenting the appearance of abortive pains. In this case great emaciation developed, sallowness of the skin, extreme helplessness, approaching the severe state of prostration, and not the slightest evidence of eclampsia, albuminuria or symptoms of the pernicious vomiting of pregnancy. We might as well say that eclampsia and hyperemesis are expressions of mania and hysterical manifestations, as to affirm these conditions are manifestations of eclampsia and hyperemesis. All these states are the results of the toxemia assuming different phases, or expressions, one not subordinated to the other. It is true that the neuropathic condition is responsible in the ordinary way for mania and hysteria; that fact in itself renders these sensitive nerves more readily the victim of the toxemic condition.

Anemia of pregnancy should be, I think, one of the types of the subacute form; toxemia itself is a poison of the blood, and that is the condition of all forms of the toxemic state. I think there are expressions of this form which clearly place anemia of pregnancy as an independent type. I will mention two cases in my practice to illustrate:

The wife of a professional brother living in Florida, whose previous history was that of good health and whom I saw in the third month of gestation, was critically affected with anemia. These symptoms rapidly grew

worse, and in a few weeks she died from exhaustion. There was no evidence of albuminuria or hyperemesis of lesion of the kidney in the history of the case. She retained perfect consciousness almost to the last moment before death. She had no other disease. This case might be classified by some as acute anemia independent of pregnancy.

The other case after the first month of pregnancy began to develop anemia. This anemia was progressive until near the close of gestation, when premature labor ended it disastrously to the child; leaving the mother exhausted and helpless, almost in articulo mortis, but without hemorrhage. Again she became pregnant, after having previously recovered good and vigorous health; she soon began to develop anemia again, and it became so alarming that I directed abortion be produced. After this was done she became strong and healthy. A few months later she again became pregnant, this time asserting that she "would carry to term or die." She finally was delivered at term, apparently in the very jaws of death, but recovered with no hemorrhage. In this case there was not at any time the slightest evidence of albuminuria, kidney lesions or hyperemesis.

My object in presenting these cases is to bring out more clearly the various conditions of the toxemia of pregnancy and also to place these so-called expressions of eclampsia and hyperemesis as *types* of the subacute form. The treatment of anemia, mania and hysterical manifestations is, with judicious variations, that of eclampsia.

Eclampsia is not always dependent upon albuminuria or renal disease. The pathological kidney may or may not have something to do with what is termed the eclamptic type, many subjects with previously severe lesions of the kidney passing through gestation without any evi-

dence of eclampsia. That eclampsia is produced in a great majority of cases by toxemia, independent of previous kidney lesion, is to my mind evident.

The pregnancy kidney is due to toxic conditions, which are a result of slight nephritis, a great factor in the production of eclampsia. In giving the treatment for eclampsia and other conditions, I will confine myself strictly to the preventive; that is, the elimination treatment of the toxemic condition.

Diet.—The diet of the patient is all-important; she should have such food as is easily assimilated, and that which has as little waste products as possible. Food of nitrogenous principles should be used at least sparingly; cut off all meats, only allowing the breast of chicken and lamb once daily in small quantities. Oat meal should be advised, milk should be the *principal* diet and used in great abundance; vegetables rich in starch should be taken freely; fruits, raw and stewed, should be encouraged; malt liquors should be left off entirely; stimulants should be used only when great necessity demands; warm bathing daily, with friction; water in good quantities.

Medicinal Treatment.—Calomel in five to ten grain doses every hour for six or eight doses, followed by salines, unless too severe purgation is produced. My observation sustains this treatment as the best that can be given this class of patients. This should give from six to eight watery stools every twenty-four hours. This treatment should be kept up from four to eight days, watching closely its effect. Sulphate of magnesia, cream of tartar and jalap may be used at times with very great effect. Colonic irrigations should be used from one to three times a day. Sulphate of magnesia, two to four ounces, may also be used in irrigations in one half gallon of water; the tube must be pushed up as

high as it will go. Lavage may be practiced, if it seems to be beneficial, once or twice a day. Irrigations of the bowels relieves them of semi-hardened fecal deposits, probably partially adhered to the mucous membrane of the bowels; they also render liquid the contents of the bowels, and the water being absorbed dilutes the blood. For severe constipation ox gall enemas may be used.

Nitro-glycerine and digitalis are not only eliminative, but in case of cardiac weakness should be used with strychnine. Veratrum viride is also a first-class eliminative in the eclamptic conditions; iron in some of its forms may be found very useful in all the types of the toxemia of pregnancy. If the medicinal eliminative treatment is not sufficient to relieve the condition and eclampsia threatens, abortion or premature delivery should be resorted to.

Two months ago, after failure to eliminate toxemic conditions, I brought about abortion at the seventh month, child and mother living, the mother free from any evidence of albuminuria or renal disease ten days after delivery. One year ago I ordered premature delivery at the eighth month for toxemia. The patient had severe albuminuria and also eclamptic symptoms; mother and child are both living. The mother in ten days after delivery was free from any evidence of albuminuria or renal affections.

Hyperemesis may be due to reflex action of the cervix and pelvic organs from irritation, but in a great majority of cases it is due to toxemic conditions. The treatment of pernicious vomiting, with modifications and consideration for the general weakness of the patient, is practically the same as that of the eclamptic type. Remedies directed to the sick stomach and vomiting alone avail but little, and we should guard our efforts in that direction. It occasionally becomes necessary to produce abor-

tion in this condition. I have never felt it my duty to do this in more than two cases, all other cases recovering. Of the two cases one resulted in death. In 500 cases of labor, I have only had for eclamptic conditions two cases of premature delivery with recovery of mother and child, two cases of abortion, with recovery of mother; one abortion of hysterical mania, recovery of mother; two abortions for pernicious vomiting, one death and one recovery; one abortion for pernicious anemia, recovery, and one without operation, death. In the report of these cases I do not refer to eclamptic convulsions at the natural term of labor or post partem. I wish to insist that we give more attention to urinary examinations in all cases of pregnancy and when conditions arise with symptoms of toxemia we should have the urine analyzed by an expert. As yet, however, urinary analysis has thrown but little light upon the subject. In conclusion, allow me to state that it is our duty to give close attention to all gravid cases. If we are not going to give that close attention, on account of the pitiful fees that many receive, we should wash our hands of the responsibility. The profession is responsible for the loose attention to this class of patients, and by education in our family practice we can bring the laity to a higher appreciation of our services well and faithfully rendered.

PREVENTION AND TREATMENT OF PUERPERAL SEPSIS.

By L. C. FISCHER, M.D., Atlanta.

I do not feel that I should offer any apology to this assembly of men who are so vitally interested in the subject under discussion. Though it has been written about for ages and discussed by our most able men, we are constantly reminded of the need of more knowledge and more systematic work along this line every few weeks by seeing or hearing of some woman losing her life at time of confinement. The picture is typical: the woman is confined; on or about the second or third day we find that she has had a slight chill, that the temperature has risen as a result; then it is that we begin to make excuses to the family for her condition—that she is bilious, that her kidneys are out of order, etc. I know that there is not a man before me to-day who fully realizes his responsibility (and I hope we all do this), but that he watches his obstetrical cases with great care for the first few days after confinement, most of us with the constant fear that this one may be the case of infection that will cause us to feel much chagrined. I have no class of work that causes me more anxiety.

It was my misfortune to be called to a very severe case of infection in the first few months of my professional career. At that time I did not feel that I was sufficiently posted to treat the case, and so told the husband. At my suggestion two consultants were called; both of them

were men of ability and reputation. At the time they saw the woman, I remember now and have often since, that the posterior culdesac was as tight as it could well be not to rupture. I know now that that pelvis was full of pus. I had never done, nor had I seen done, a vaginal puncture to relieve this condition. In a few hours after seeing the woman, she developed general peritonitis, and died a few days later. This case was treated with salts, calomel and opium. While the results might have been the same, had other methods been pursued, I shall always feel that that woman's life was lost by not receiving the proper treatment at the first.

The statistics of pueperal infection can not be relied upon. Most of us know of cases of pueperal infection and death where they were reported as being due to typhoid or malarial fever, occlusion of the bile passages, to previous bad health, and other such like excuses.

In this day of advances in all sciences the death rate from puerperal sepsis is practically the same in private practice as it was years ago. Statistics of private work are unreliable in the South for several reasons. First, there are those in the profession who are afraid to report a cause of death as puerperal sepsis for fear of losing professional prestige in that locality, thereby losing fees. Then there are others who fail to report the true cause of death from ignorance of the real condition. Then the great amount of work done by midwives, especially among the very poor and negroes. Just here, I would like to say that there should be some law governing the practice of these midwives; they should be forced to stand an examination along the line of their work. Too many women are sent to the great Judgment Bar by their uncleanly, not to say, filthy work. The reports from the hospitals, while valuable, do not give us any idea of what

is occurring on the outside. In the hospitals and maternities the surroundings are the best. With the best physicians of the locality to conduct the case, with trained assistants, with nursing by competent hands, with time to prepare the patient, her bedding and clothing, with all instruments and dressings sterilized after the most improved methods; while, on the other hand, in private work, we have to contend with all kinds of cases in all stations of life, with all kinds of nurses, often a meddlesome negro nurse, who is a midwife as well as a nurse.

While on a recent visit to New York I saw Dr. W. M. Polk operate upon two cases of infection in one day that were sent in to the Bellevue Hospital from the crowded districts of New York. The same afternoon I saw Dr. Stewart operate for the same condition.

At a recent meeting of the Philadelphia Obstetrical Society Dr. Hirst said that he had to operate upon a large number of these cases every year. In the last three days three of the most desperate cases of puerperal sepsis were brought to the University Hospital in the ambulance. He had usually four to six cases under observation continually.

Go back a few years in obstetrical practice and you will see a great many patients who had "child-bed fever," phlegmasia alba dolens and their complications; they were considered unavoidable. Despite the great improvements in antiseptics, fever in the puerperal state is still seen. Strict asepsis in obstetrical work is practically impossible. First, due to the conditions that might have existed before we examined the woman, as the presence of gonococci, staphylococci, etc., and then the anatomical relations, close proximity of the anus, the excretions and the difficulty in making the vulva aseptic on account of the hairs and folds of the vulva.

It is admitted by all scientific workers that puerperal sepsis is due to the different streptococci to gonococci, to bacilli coli communis and staphylococci. Then, when we admit the cause, we should use every effort to prevent the result; we should exercise the greatest care in our work in preparing the patient for confinement. We should see that she has had a general bath, with especial attention to the parts surrounding the vulva, that she should have on a clean gown, that bladder and bowels are emptied. The bed should be prepared so that all discharges can be removed when the woman is cleaned up after birth of child. A rubber sheet about four by six feet should be first placed on the bed, this to be covered over with a clean sheet; the use of a Kelly pad is advisable for two reasons —the ease with which it can be made aseptic and cleanliness, it catching all discharges. If the rubber pad is not used, then an absorbent pad should be placed next to the rubber sheet and covered over with the draw sheet; the top sheet should likewise be clean. Where I can direct the preparation of the bed, I like for these sheets to come to the room fresh from the laundry.

The Kelly pad should be thoroughly soaked in bichloride solution before being placed under the woman. Then, with the woman placed in dorsal position, I have the nurse or in the absence of a competent one do it myself, clip the long hairs from the mons veneris and labia majora, then sponge the external parts thoroughly with bichloride solution, 1 to 2,000.

With the coat removed and a rubber apron on for two-fold purpose, to protect the clothing and to protect the woman from any germs that may have accumulated on your clothes in everyday work; with the sleeves well above the elbows, scrub thoroughly with soap, brush and warm water from five to ten minutes, where time will

allow (this is the rule), then soak the hands thoroughly in bichloride solution, 1 to 2,000, for at least three to five minutes; careful attention should be given the nails. I prefer the use of gloves, soaking them in bichloride solution of the same strength. It is admitted that all cases of puerperal infection are caused from without, so we can not use too much care in our first preparation. When you have gotten to the case late, and have not time to make thorough preparation, the hands should at least be soaked in antiseptic solution, preferably bichloride, and gloves worn, taking due care not to make any more examination than is positively necessary, and by no means in the vagina until you have time to cleanse the hands thoroughly. The parts should be cleansed hurriedly with bichloride solution before making any examination. After preparations have been made make a careful examination, do not allow the examining hand to come in contact with the bedding or unclean parts of the woman. If possible, make your diagnosis at your first examination; then watch the descent of the head by making external examinations; in normal cases one or two vaginal examinations is all that is necessary. One mistake that we make is examining the woman too often. It not only increases the danger of infection, but increases the patient's anxiety as to her condition. Of course, there are cases where this rule will not apply. When it is necessary for version to be done, or forceps used, the hairs should all be shaved off from mons veneris and surrounding parts, then scrubbed thoroughly with soap, water and bichloride solution. A bichloride douche, 1 to 4,000, or lysol, 1 per cent, should be given before delivery. This cleanses the vagina and, where lysol is used, acts as a lubricant. In normal cases of labor the douche is not advisable by any means, especially after delivery. After the child is de-

livered, the placenta should be delivered by Crede's method; it should then be carefully examined to see that it is intact and that all membranes have been removed; then the external parts should be thoroughly sponged off with 1 to 4,000 bichloride solution and a sterile napkin applied over vulva. This should be changed and the parts sponged off with a solution of bichloride or lysol every few hours. Where the forceps have been used an intra-uterine douche should be given, a bichloride solution, 1 to 10,000, being used. The danger of poison from absorption is practically nil from this strength. The solution should never be stronger than this in the uterus.

In all cases, after the third stage of labor is completed, the perineum should be carefully examined for tears; where there is a tear of any consequence, more than the simple breaking of the continuity of the mucous membrane, it should be repaired at once; within the first six to eight hours at the longest. The woman should be turned crosswise in the bed; a sheet folded can be used very satisfactorily for leg-holders; then cleanse the wound thoroughly with antiseptic solutions and approximate the torn parts carefully, being sure that you approximate muscle to muscle, etc. The instrument shops now carry a very satisfactory ligature, threaded in needles, sterilized and sealed in glass tubes; chromicized and plain catgut is the best suture material. The closed tear is much less liable to become infected than when it is left open. I saw a case of infection recently where the doctor had closed the torn perineum with plain ball cotton thread, taken from a work-basket in the room. This case was seen by a third physician, who told the family that the trouble was caused by the perineum having been closed at all; that it should have been left open. I find men occasionally who contend that the woman is much more liable to

become infected if the tear is closed. For my part, I much prefer taking chances with it carefully repaired, as it does not leave so much raw surface for absorption. So in all cases where I have a tear I close it at once in most cases, anesthetizing the patient. In cases where forceps and instruments are used it is necessary that they be carefully sterilized; they should be boiled and used from the same vessel that they are boiled in or placed in a sterilized one in a 1 per cent. lysol solution. The ligatures can be reboiled along with the instruments, where the ones referred to are used.

The woman should be watched carefully for the first five to seven days, the nurse should keep the parts thoroughly cleansed with a bichloride solution, 1 to 4,000. Should the lochia become offensive, or the temperature rise above 99 to 99½, a vaginal douche should be given at once; unless the temperature reaches normal in a few hours a careful digital examination should be made, and especial care given to the possible retention of membranes or pieces of placenta. You should see that the bowels are well opened and that the kidneys are acting normally. Where the vaginal douche does not reduce the temperature in a few hours, the dull, irrigating curette should be used with care, using very little force for fear of puncturing the uterus. Bichloride solution, 1 to 10,000, should be used, using two gallons or more, and as warm as can be well borne by the patient. Do not pack the uterus with gauze after curetting, as this retains discharges. I have done this, and upon removing the gauze twenty-four hours later found that the odor from the gauze was worse than the original condition. Elevate the woman's head or place her in a sitting position for a few moments to allow the uterus and vagina to empty themselves of the bichloride solution. Hot douches should be given every

three to four hours, two gallons at a time; this aids involution of the uterus, besides it is soothing to the patient. Where the intra-uterine douche has been given with bichloride solution, follow this with normal salt solution. After this give due care to the breasts, as they sometimes cause fever from slight inflammation or occlusion of the milk ducts. Should the temperature persist, the discharge remain offensive, the pelvic organs and lower abdomen become tender, this patient should be watched with fear. The tubes and ovaries should be watched with special care and attention given to the posterior culdesac; one point that I wish to stress especially here is the making of careful digital examinations.

I was called ten days ago to see a young woman who had been confined three months previously. She had been in bed ever since confinement, with enlargement and inactivity of the liver, acute Bright's disease, inactivity of the kidneys, typhoid fever and pneumonia. When I was called it was time to sign the death certificate, which was done two days later. Upon entering the room the odor was unbearable. I made an unsatisfactory digital examination; everything in the pelvis seemed solid. I removed something from the vagina, which appeared to be decayed placental tissue. She had general peritonitis and was green from absorption of toxines; temperature 104½, pulse 140, respiration 40. I told her husband that I was powerless to help her. She died about thirty-six hours after.

Where there is infection in the uterus it spreads to the surrounding parts through the lymphatics and through the tubes into the peritoneal cavity and surrounding tissues. Often with these mild cases of infection, with infiltration into the tubes, ovaries and pelvic tissue, this condition can be greatly benefited by using systematic

hot douches every three hours, preferably lysol solution, about two gallons, ten minutes at a time. This will very often arrest the infection and aid resolution. Should you not be able to cause resolution, the inflammation may become localized and form an abscess in the pelvis or some pelvic organ. Should these abscesses appear they should be opened through the vagina, a T-shaped drainage tube left in. I use the drainage tube in preference to gauze because my results have been best with the tube; as previously stated, I have used the gauze and upon removal in twenty-four hours find the odor worse from the gauze than from the pus that was first removed. Gauze not only does not drain, but dams up the pus and the debris. I have found in these cases that the temperature would rise until the gauze was removed and then drop in a few hours. Vaginal douches should be given every three to five hours to keep the pus washed away and stop absorption. Drainage tubes should be left in for forty-eight hours, then removed, boiled and replaced, if necessary. Where the infection has been general the patient begins to turn green, with quick thready pulse, temperature showing septic variations, the whole body bathed in profuse perspiration, with sweetish breath; this case is desperate. The same local treatment should be kept up. Rectal anemas should be given, one pint at a time, of normal salt solution; usually the woman can retain a pint every three hours. Normal salt solution should be given subcutaneously; under the breasts and under the skin of the thighs, preferably. In the event you can't wait on this, give it directly into the veins, from a quart to three pints at a time. Stimulants should be given, as is indicated, in the form of whisky, strychnine, and such like heart stimulant. The bowels should be kept well open and see that the kidneys are acting normally; rubbing the

whole body with alcohol is beneficial and acceptable to the patient. Strictly liquid diet should be given. In the use of normal salt solution the 9-10 of 1 per cent solution should be used, as this is isotonic with human blood; the 6-10 of 1 per cent. is isotonic with frog's blood, and may cause some solution of hemaglobin. After the use of normal salt solution I have seen cases of septicemia, where the temperature would drop several degrees in a few hours and the pulse come down from 140 to 100. Dr. Robert T. Morris speaks of the use of normal salt solution as blood washing. It dilutes the toxines in the blood and aids elimination through the kidneys and skin.

In May, 1904, I was called in consultation with Dr. G. B. Couch, of Hapeville, to see a Mrs. H——, who had been confined four days previously; on the second day of confinement she developed a temperature ranging from 105 to 107. This kept up for forty-eight hours, when I saw her. There was tenderness in the lower part of the abdomen and offensive discharge from the vagina. I made a careful digital examination, found the uterus large and boggy, and could feel what I took to be some small pieces of membrane. There was tenderness on each side of the uterus, and great tenderness on pressure over the body of the uterus. I advised immediate curettement, which was done at once with dull, irrigating curette, having the patient thoroughly anesthetized. There was a small amount of debris removed. She had unavoidably been confined in a room where her husband had had smallpox a few weeks previously. After curetting her, the temperature dropped to normal in a few hours, to rise again on the following morning. The second day after seeing her I opened an abscess through the right side of the vagina; two days later one through the left, and two days later one through the posterior culdesac; three days later,

opened another at the extreme right of the vagina, she being anesthetized each time. Her temperature kept up all of this time, and just here she began to complain of pain above the brim of the pelvis in the left lumbar region. By bimanual examination a small enlargement could be felt high up in the pelvis. In about three days this could be detected through the abdominal wall, which gradually enlarged. I then advised that she be brought to Atlanta, which was done, and she was placed in the Tabernacle Infirmary. The following morning the abdomen was opened directly over this enlargement, which was just above the brim of the pelvis. Upon cutting through the abdominal wall it was found that adhesions separated this enlargement from the peritoneal cavity. The left tube could be traced up to this mass, much thickened and inflamed. Upon opening this abscess, it was found full of very offensive pus. The cavity was thoroughly flushed with salt solution. Three rubber drainage tubes were left in and dressings applied, patient placed in bed on her side to keep up drainage. The external dressings had to be changed every few hours for the first three or four days. At this time I found another abscess between the bladder and vaginal wall, which was opened and drained. This case was treated with the normal salt solution, as suggested. She was confined to her bed in the hospital two months and ten days, when she was dismissed in good condition. I am informed that she is again pregnant.

Finally, the points that I wish to especially stress in this paper are:

First. The careful preparation of the bed and the woman before the birth of the child, with especial attention to hands and careful examination of the placenta and membranes.

Second. After birth of the child careful examination of perineum for tears, and if they are present repair them at once.

Third. That in case there is a rise of temperature, that you should start at once with treatment.

Fourth. The importance of making careful digital examinations and the use of the dull irrigating curette early, where the temperature is not reduced by douches. The importance of the normal salt solution to dilute the toxines and aid absorption, and the strengths of bichloride solutions.

Fifth. The preference of tube drainage over gauze in these conditions, and the absolute avoidance of gauze in the uterus after curetting.

Sixth. The importance of opening and draining the abscesses as they form in the pelvis or any pelvic organ.

IMPORTANCE OF PROMPTLY REPAIRING LACERATIONS OF THE FEMALE GENERATIVE ORGANS AFTER LABOR.

By E. C. DAVIS, M.D., Atlanta.

Having been forcibly impressed by the great number of women daily crowding our hospitals seeking relief for lacerations of the generative organs and their sequelæ, I have been constrained to direct your special attention to the importance of recognizing these conditions and promptly relieving them before almost irreparable damage has resulted, or before it has become necessary to sacrifice some of the appendages in order to restore the suffering to health. There are few subjects more important to the general practitioner than this, or that should be given more careful consideration, for upon his care at this time depends both life and the subsequent health of the unsuspecting patient.

Some lacerations occur with practically all primipara, these varying from a simple solution of the continuity of the mucous membrane to a tear entirely through the sphincter and into the rectum. They may be so superficial and trivial as to require no treatment except a careful avoidance of infection, or they may require the highest possible degree of skill, in order that they may be restored approximately to their original conditions. Many now present can recall the oft-repeated remark of the venerated old teacher of obstetrics, who annually proclaimed to his class that "in the many years of practice and in the hun-

dreds of labors he had attended, he had never had a lacerated perineum." Unfortunately, several now present have had to repair lacerations in his patients in later years, overlooked by him. Between 25 and 35 per cent. of primipara are lacerated sufficiently to require attention after delivery. In multipara the proportion is markedly diminished, but even with them, approximately 10 to 15 per cent. will be found requiring surgical attention. The reason why lacerations are not attended to often is that the physician is worn out from prolonged attention, perhaps all night or longer, and, in addition, the patient is at home, with surroundings not conducive to aseptic surgical work, and in such instances it is often wiser to defer operative relief until suitable surroundings can be procured for a reasonable hope of success. Again, many physicians seem to forget that the anterior surface of the vaginal vault and contiguous tissues are prone to traumatic injuries and need surgical attention. As to lacerations of the cervix, I must confess that unless the tear is high up and some large blood-vessel invaded, I usually wait a reasonable time for involution to begin, and determine then the extent of the laceration and the needs for repair.

My usual plan to detect lacerations is to examine the patient carefully after delivery, and again when patient has been cleansed by the nurse; then if I find lacerations of the perineum or vagina to make proper repairs at this time. From four to six weeks after delivery I instruct my patients that they should again be examined, to determine whether there are any lacerations of the cervix, and to again see the results of the operations on the perineum, if any have been performed, and if there be existing lacerations to have them properly attended to at this time.

As to the prevention of lacerations, much can often be done if you can gain the perfect confidence of your pa-

tient, and have her carry out your orders carefully. You should begin some months before the time of expected confinement, and advise her carefully about diet, exercise, baths, etc. To enter upon this is unnecessary before this body of physicians. The market is flooded with cheap oils, said to be specifics for easy and normal labors without lacerations, and inasmuch as one woman who used some special oil has had an easy time, she recommends it to all of her friends. These things we know have no virtue above that of a good massage with pure olive oil, and instead are often dirty, rancid and irritating oils, making the patient unclean and causing micro-organisms to adhere that would otherwise be easily removed. At the time of delivery we have valuable means of assistance at hand to avoid these occurrences in ether and chloroform and in manual resistance to the too rapidly descending head. Watch carefully the descent of the head and see that this is retarded until the maternal parts are dilated, and will permit the easy escape of the fetus. If the descent promises to be too rapid, I do not hesitate to have my patient inhale a little chloroform or ether, thereby in a measure controlling the pains as I wish. In cases in which the perineum shows that it will be torn, I unhesitatingly make lateral incisions in the vagina, in order to enlarge the opening of escape. These can readily be closed after delivery. Again, all supports to the perineum are worthless, but by simply pushing up the head over the perineum and under the pubic arch, much can often be accomplished toward the preservation of the perineum. Above all things, do not allow the head to escape until the perineum has been thinned and the parts dilated and dilatable. After the delivery of the head, in broad-shouldered children, we must watch that the shoulders do not increase a tear and convert a slight one into an extensive

and serious tear. The shoulders must therefore be carefully lifted over the perineum. By these simple means many lacerations may be avoided and much discomfort prevented.

Now, what are the pathogenetic possibilities of neglected lacerations? The first and foremost is puerperal infection. This, as we know, is almost invariably introduced from without. According to a most interesting editorial from Dr. Stanley P. Warren, in the *New York Medical Journal*, he states that: "The acid secretions from the vagina are germicidal, and from experiments by Duerssen, Krönig and others, that after placing various micro-organisms in healthy vaginæ, the canal was found sterile within forty-eight hours. Streptococci die first, then staphylococci, pyocyani in this order, the gonococci alone finding this a suitable medium for growth and multiplication. Quite a different condition exists about the vaginal entrance. Here micrococcic life is luxuriant, as might be expected from the environment of these parts, their nearness to the anus, their opportunities for contamination with decomposed urine, cutaneous excretions and soiled clothing, and for infection by perineal handling. The integument of the pudendum being partly true skin and partly transitional between skin and mucous tissue provides a natural habitat for such micro-organisms. Even in a healthy woman then the outlet of the birth-canal is naturally and artificially septic, and that this condition is universal is proven beyond question."

If we accept these statements as facts, we must readily see the great importance of cleansing this area before delivery, and closing these fresh surfaces to minimize the possibilities of absorbing the toxins or furnishing a fine field for entrance of septic micro-organisms. This to me is one of the strongest possible arguments in favor of an

immediate repair, which in this instance is often a life-saving measure. Again, in the deep tears, especially of the cervix, it may be necessary to make an effort at repair on account of the involvement of some of the large blood-vessels and the free hemorrhage which results. The repair in such cases is usually unsatisfactory, and while it must be attempted in order to control the hemorrhage, we must bear in mind that often it must be done over again, to place the patient in a good or normal condition. Where these lacerations have been overlooked, or neglected primarily, we often find a patient later present herself for relief for a lack of pelvic support, prolapsus uteri or vagina, rectoceles, cystoceles and the various displacements of the uterus. These conditions are frequently accompanied by numerous nervous reflexes; common among them is neurasthenia, hysteria, etc. Given a patient who informs you on interrogating her that she has not felt well since the birth of her child, without the history of pelvic inflammation, and nine times out of ten you will find on examination some lacerations of the pelvic organs. If these conditions are relieved early, the annoying sequelæ which so often accompany these neglected conditions may be promptly relieved and the patient restored to her accustomed health. If neglected, almost hopeless invalidism may result, and the condition of this patient is pitiable beyond comparison.

Just here I wish to state an observed difference in the sufferings of certain women with lacerations. In examining, some women with a very slight tear appear to suffer greatly; again I have had women present themselves complaining but slightly of the pelvic organs who on examination have been found to have very extensive lacerations with very insignificant symptoms. This latter is especially noticeable in the negro race. The first con-

dition in the highly organized nervous women who seem particularly susceptible to nervous disturbances, and a slight laceration with them often requires more careful attention than a more extensive one in a less sensitively organized woman.

As to the method of repairing lacerations, I would suggest that the entire object to be desired is the endeavor to restore the parts to as nearly their normal condition as possible. We must bear in mind the tendency of the muscular tissues to contract in the direction of their attached portion. Hence, in these conditions, there is a noticeable drawing upward of the torn muscular tissues, and it becomes necessary then to pull down these tissues in order to restore them to their proper positions. When lacerations occur in the anterior vaginal vault, I usually study the direction of the tear, and with my patient anesthetized, approximate the edges of healthy tissue by using several tenacula so as to see how the best approximation is to be secured. This is most satisfactorily accomplished with the patient in Sim's position, using Sim's (or one of the modifications of Sim's) speculum to expose the part. Remember always, before attempting any operative measures in this region, the necessity for careful cleanliness and a very careful technique. Rubber gloves are especially advantageous here, and while they may interfere somewhat with the tactile sensibilities, the assurance that they are sterile more than counterbalances these slight disadvantages. Close over the raw surfaces here, and you will avoid the possibilities of subsequent complications in this locality.

Now, as to lacerations of the perineum, the superficial ones can usually be attended to without a general anesthetic, as the tissues are partially anesthetized from the prolonged pressure, and with a manageable patient these

may be readily closed without an anesthetic, or with a little local anesthesia. It is the complete tears which require skill and care. Here the sphincter must be recognized, the ends brought together, and then the other tissues in their proper relations. The sphincter must be approximated by the use of three or more chromicized catgut sutures, the intra-vaginal sutures then applied, after locating the direction of the tear, and, if needs be, trimming off the tags which have become devitalized. The operation then is very similar to a planned colpoperineorrhaphy, with which I shall not now impose upon you a description. The same holds here of cervical lacerations. These latter two should only be attempted under a general anesthesia, and, if possible, with proper assistants.

As to the time for operations, this has already been alluded to, but I wish to repeat that when practicable these should be undertaken at the time of delivery, but when seen for the first time one or two days after delivery, then by gently curetting the lacerated area and approximating the edges, it is surprising how gratifying the results will often appear. After cicatrization has taken place, we must bear in mind the advisability of removing the cicatricial tissue before attempting the tissue approximation.

I have endeavored in this brief article to impress the importance of attending to these little surgical procedures while they are simple and easily accomplished, and I trust the day is not far distant when a lacerated perineum will become as rare as the vesico-vaginal fistula, which through the efforts of the great Marion Sims have been practically removed from the list of woman's woes.

DISCUSSION ON PAPERS BY DRS. M'HATTON, TAYLOR, FISCHER AND DAVIS.

Dr. Bomar: In March I was called to a case in which they stated the legs were swelling and shortness of breath. I asked for a specimen of urine and found 75 per cent. of albumin. I put her on treatment, but two days later she had convulsions, and I called in Dr. Kennedy, and after consultation we decided to deliver with forceps, which we did at 4 p.m. On the third morning after delivering her she died. The case was in the fifth month of pregnancy.

Dr. J. W. Duncan: On the 13th day of this month I was called early in the morning to a case of confinement. I went to the patient and found her howling with headache. She was blind and could not see her hand six inches from her eyes. Her legs were swelling and her bowels had not moved, that they knew of. I gave her ten drops of fluid extract of gelsemium, veratrum, and morphine and atropine, and salt solution three pints. I called for Dr. Kendrick to assist and he came, and we gave chloroform and delivered her of a boy, the child living. The lacerations were not complete, but down to the sphincter muscle. We repaired the lacerations and left her in a fair condition, pulse almost normal. I went home, getting there about noon, and I received a message that the patient was having hard convulsions. I went immediately and gave seven drops of Norwood's tincture of veratrum and morphine and calomel. I left veratrum and paregoric to be given every few hours when she had convulsions. The next morning she had not had an action from her bowels, and I gave her two heaping teaspoonfuls of sulphate of magnesia. She had no return of the convulsions. She went along for two days without any abnormal temperature, and on the third day had a slight chill, the milk

appearing in her breasts. I saw her this a.m. and she was resting well and the baby was doing well.

As regards cleansing the hands in preparing for a case of labor, it is very important and absolutely necessary if you have time, but occasionally you do not have time for anything. For instance, I was called to another case at night, and hurried there and was told that the child was born. Not hearing the child cry, however, I went to the bed to see if the child was born. I found that the head had been born, but the hips were undelivered. I at once completed the delivery, having no time to sterilize my hands. However, when it is possible, we should use all necessary precautions. When we see such filthy conditions of some midwives we do not see how some get along at all. I have seen perfect filth and no sepsis at all, and yet sometimes when we are as careful as we can be we have septic cases.

Dr. McIntosh: I have nothing but compliments for all these papers. The personal work of my friend, Dr. Taylor, is well known in our town, but there are one or two points upon which I wish to speak. Dr. Fischer recommends an intra-uterine douche of 1-1000 bichloride of mercury. It has never been my custom to use the bichloride in any intra-uterine douche. Not long ago I was called into consultation in another town where inflammation was due to bichloride douches. My custom has been to use a uterine douche, and use it with plain water or salt water solution. I believe this is just as effective, and do not believe that it ever produces bad results.

The gentleman who has just sat down is unable to account for the good results in cases of labor in the slums where no sepsis follows. This is due to the fact that no fingers are introduced into the vagina. In my cases I

never introduce the fingers into the uterus at all. You can diagnose the position of the child by external manipulations. You can make out the hips, you can outline the back, and determine at which place the head is fixed. By pressing down with the thumb and finger above the pubic bone you can tell whether you have a head or breach presentation. Leopold, of Dresden, in the great majority of cases never makes a vaginal examination; I mean in normal labor. Of course, all these precautions of antiseptics are carried out in detail, but in many cases I never put my hand into the vagina.

As to the tear of the vagina, I do not always get primary union. But in reference to chloroform, it is my invariable rule to give chloroform in labor, except where there are severe heart lesions. I have delivered woman after woman who never knew when the child was born. I have had lacerations of the perineum in such cases, and I do not believe that chloroform has much effect in checking lacerations. I simply want to emphasize that I rarely ever place the hand into the vagina.

Dr. C. L. Williams: I wish to call the attention of the Association to the cases of labor where there is albuminuria. I have long since placed very little value upon the urinalysis. I can cite one case where there was at least 80 per cent. of albumin, and I went on and delivered without any trouble. Another case came under my care not a great while ago, and I examined and found a very large amount of albumin. The mother of the young woman became alarmed, as she could examine the urine herself with nitric acid, and insisted upon another physician seeing the case. The other doctor said that it was a case for premature labor. I could not consent to that, for the responsibility is very great on any physician who takes

the life of an unborn child. This case went on and was delivered without any accident or trouble.

As to the position of the gentleman who has just taken his seat as to diagnosing the presentation without digital examination, he is the second man that I have ever seen who has contended for anything of that sort. I believe that Dr. McIntosh is perfectly sincere in what he says. I believe he thinks he can do it, but I do not believe there is any man living who can always tell without a digital examination. A case came under my observation while I was a student at Bellevue Hospital. A woman was brought before the class in the care of Dr. Isaac E. Taylor, a woman under the influence of chloroform, and he said, "Now, gentlemen, here is a case of twins," and he went over the abdomen and outlined the head here and the feet there of one, and then the other. He proceeded to deliver with forceps, and after delivering one he turned to the class and said, "Gentlemen, there is no other child there." It is possible there are some cases where you can detect the presentation, but they are few and far between.

Dr. M. A. Clark: We are about to wander off from the most important part of this subject, and that is, in reference to albuminuria in pregnancy, and the importance of preventing it. Certainly this is one of the most important subjects before the profession. The time for us to act is before the alarming symptoms occur. I like to know as soon as my patients are pregnant. Some of them speak to me before they are pregnant. I want to have a specimen of urine and the quantity for twenty-four hours, and whether the solids are normal, and whether it is free from albumin. I prefer, also, to make a microscopical examination for casts. After this I feel better about my patient, and after this I have them send me a specimen every three weeks after the fifth month, and during the

last month every two weeks. I instruct my patients, however, that if they have any headache, or puffiness of the eyes, or swelling of the feet, to send me a specimen in the interim, and I make an analysis, and if I find any albumin I put them on treatment, and if this disappears I feel easier. If I find albuminuria about the time of confinement I am very apprehensive. I had a patient not long since with albuminuria, and was thinking of inducing labor, but she got through all right without any convulsions, but it was a question in my mind as to whether I should take the risk. We should consider seriously the induction of labor when we can not remove these alarming symptoms. If any gentleman is so fortunate as to have a patient get through, it is good luck, and we are all lucky at times. Sometimes we have convulsions, and when we are most careful, and I do know of one case of convulsions without any apparent cause for same. The patient had convulsions twelve hours after labor, and, while I did not give her veratrum, I did give calomel, and I gave chloroform to control the convulsions, and I followed this with an enema, and my patient got well. As soon as I could get a specimen of urine, I examined that, but found nothing wrong. I did not understand what was the cause of the trouble.

Dr. R. R. Kime: There are one or two points that I would like to speak of. These excellent papers covered so much ground that I can not go over it all.

We are not making our examinations thorough enough. I believe the examination of the urine is incomplete without the microscope. Albumin itself in the urine in many cases does not amount to a great deal. The absence of albumin in many cases is not indicative that we will not have trouble. The difficulty is in not bringing together all our symptoms and in making all the examinations

necessary. The man who depends upon the chemical examination of the urine alone will often be surprised.

Also, in the vomiting of pregnancy, our examination of the urine is not often enough and thorough enough. You will often find hyaline casts, etc., and with care these will disappear and the patient will improve. If you neglect this the patient may get worse, and may die.

The emptying of the uterus is a serious matter before the seventh month. We should not take a life unless the life of the mother is sure to go. Unless we have a serious renal lesion we should not compromise ourselves by taking a life.

As to bringing on labor, if you will render the parts as aseptic as possible, and pack around your cervix a boric acid and sterile gauze you will put your patient in a better condition than any other way. In this way you have done it aseptically, and you have prepared the cervix so that when you remove the gauze the cervix is dilated and you can complete your work with perfect safety.

Dr. McHatton: In regard to the albuminuria in pregnancy. I consider this an absolute danger signal, and we should be always on the watch for it, and when it is present, then comes up the question of inducing labor.

I am in favor of using the bougie in dilating the cervix. They are not as quick as the gauze, but if you introduce the gauze you are compelled to introduce a certain amount of air, and you can not have as aseptic conditions as with the bougie.

Dr. Taylor (in closing): I have nothing to add, but as to the microscopical examination of the urine, there is a shade of doubt about it unless it is done by a specialist in that line. I insist that all urine be examined by a specialist when there is any danger.

REPORT OF CASES OF TUBERCULOSIS AS TREATED WITH BACILLUS X, MAHER.

By T. E. OERTEL, M.D., Augusta.

In the *New York Medical Journal* for January, 1904, Dr. Stephen J. Maher of New Haven, Conn., published a paper entitled "Some Investigations of a Bacterial Treatment of Tuberculosis."

For the information of those who have not read this paper it is well to state that Dr. Maher reported a series of forty cases of tuberculosis treated with living cultures of a bacillus which he isolated from the milk of a tuberculous cow.

Prof. H. W. Conn, to whom this bacillus was submitted for identification, reported that it is "a not uncommon dairy bacterium, which is at all events very closely related to bacillus mycoides."

He further states "it does not exactly agree with any described species except B. mycoides III, Conn, and it differs slightly from this." Dr. Maher has called it bacillus X.

The results reported by Dr. Maher were such that they claim attention, for while many of his cases did not improve under the treatment others seemed to be benefited to a marked degree, and in several instances apparent cures were effected.

Through the kindness of Dr. Maher I was furnished with a culture of his bacillus. It is not my purpose to discuss the rationability of a bacterial treatment of dis-

ease. The time limit of papers presented to this Association prevents even a lengthy report of cases. I intend only to present for your consideration, and in as brief a form as compatible with clearness, the results of my clinical experiments with Bacillus X (Maher), in a series of seventy-three (73) cases of tuberculosis. These cases are divided into two groups, for reasons that are obvious.

Dr. Maher has used the organism with good effect in otitis and bone infections of a tubercular nature, by instilling pure cultures or by packing with gauze wet with cultures of B. X.

In all of my cases I have injected subcutaneously the B. X. grown in bouillon, generally using a forty-eight hour culture, as recommended by Dr. Maher.

The bacillus X is a motile, spore-bearing, faculative anaerobe, growing well in all ordinary culture media, in which it produces an alkaline reaction. Dr. Maher reports that he has been able to reclaim it from the sputa and blood of patients several days, and in the urine even weeks, after subcutaneous injection. Unfortunately it has not been possible for me to pursue investigations along this line. I have followed the suggestions of Dr. Maher that the injections should be not oftener than once in three weeks, and that they should be in the proportion of one cubic centimeter of bouillon culture to each 100 pounds of body weight.

In the negro population of our State Sanitarium for Insane tuberculosis runs riot, a large majority of deaths in this class being due to it. Not only is this the case, but in nearly every instance the disease is of the florid type and often death ensues within a few weeks after the condition is detected. Also, in the large majority of cases tuberculosis is not suspected until it is well advanced, the mental condition of the patient being such that no co-operation on his part can be obtained. I have in mind

one case, a negro woman, who died with extensive pulmonary tuberculosis, who through the whole course of the disease never was observed to either cough nor expectorate.

Because the negro so quickly succumbs to tuberculosis, and the insane negro is without question even less resistant to the progress of the disease, and because the factors that militate against recovery from tuberculosis are unavoidably present in the negro population of our State Sanitarium for Insane to such a great degree I consider that in this class of patients an ideal field existed for experimentation with the B. X.

With the permission of Dr. Powell, the superintendent of the institution, I used bacillus X in the following series of cases. Only those individual cases that are of especial interest are reported in detail, the remainder appearing in tabular form. The cases treated were not selected. All cases were injected where a diagnosis of tuberculosis was reasonably certain. Many were in the last stages of the disease, not a few in articulo mortis. Gain in body weight is taken as an evidence of improvement. It may be well to add that the diet of these patients is not ideal. The State allows for the maintenance of the institution the munificent sum per capita of 30 cents per diem.

Treatment other than with bacillus X. was limited and entirely symptomatic. The patients are kept in the open air as much as possible.

I wish first to present a series of nineteen cases of pulmonary tuberculosis in patients at large. You will see from the details of the cases that they were not selected. I have given the injections to all of these patients only after explaining the experimental nature of the treatment. I may add that in no case have I seen any serious symptoms or condition that I could attribute to the injection.

In one or two instances small abscesses formed at the

point of puncture, but these readily healed when drainage was established.

Case No. 1.—C. W. H. White, male, aged twenty-three. Professional athlete. Has had tuberculosis about two years and has been treated in Western sanitarium without benefit. Has come home to die. Symptoms of third stage, with marked emaciation.

Bacillus X. was injected without beneficial effect, patient dying within a few weeks.

Case No. 2.—J. H., colored, male, aged twenty-two. Father, mother and two sisters died of tuberculosis. Two sisters living and well. Has been sick with cough for a year or more. Now has fever and night sweats. Tuberculosis in sputa and signs of third stage; liver slightly enlarged. Pulse 132. Respiration 44. Temperature 102. Expansion 1½ c. m. Cough at night is distressing and keeps him awake. Injections 1.75 c. c., forty-eight hours. Bouillon culture in right subclavic space.

At the end of ten days his condition has improved. Does not cough nearly so much at night, and sputa is easier to raise. His strength has also materially improved. Respiration 32. Pulse 114. Temperature 100.2. Lungs not so sore as they were.

This improvement was but temporary, and patient died about six weeks after first injection.

Case No. 3.—G. B. W. White, male, aged forty; carpenter. Had lung trouble for years, severe cough four years past. Normal weight, 168; present weight, 115. Large quantity of purulent sputum laden with T. B. Very weak and keeps his bed most of the time. Physical signs of advanced third stage. Injections of bacillus X had no influence whatever, and patient died within a few weeks after treatment was instituted.

Case No. 4.—T. M. O. White, male, aged twenty-six.

Has had pulmonary and laryngeal tuberculosis for three years. Has been West and had sanitarium treatment, and has come home to die. Can speak only in a whisper, is very weak and emaciated. Has five or six loose stools a day. Presents the picture of a man in the last stage of tuberculosis. Injected bacillus X. July 22d. No improvement resulted, and patient died October 24.

Case No. 5.—J. C. W. White, male, aged thirty-five. Boiler inspector. Has had tuberculosis for over a year. Respiration 30. Pulse 100. Temperature 101.5. Weight 140. A man of large frame, showing marked emaciation. Physical signs of third stage, with several cavities in left upper lobe, broncho-vesicular breathing and ribs over lower left lobe and lower right lobe in front and back. Vocal fremitus markedly increased over left lung with flat percussion note. He was given an injection of bacillus X. on November 16th. Reported December 26th. Weight 148, and expectoration decreased. The gain in weight was probably due to milk diet advised. His general condition and symptoms are the same. Another injection was given without benefit. Died April 5th.

Case No. 6.—J. K. H. Male, white, aged nineteen. Clerk. Father died of tuberculosis. Mother living; eleven children, three living. None died of tuberculosis so far as the patient knows. For several months has had cough, expectoration and fever, with frequent night sweats. Loss of flesh and appetite. Frequently has spit blood, at times a mouth full of red, frothy blood. T. B. in sputum in large numbers. Pulse 100. Respiration 32. Temperature 102.

Both upper lobes show signs of second stage of tuberculosis. He was anemic and frail. After the first injection of bacillus X. his night sweats ceased. He was sent to the country, but did not improve and had a severe

hemorrhage about three weeks from the first injection. Another injection was given him, but no improvement resulted. He then passed into other hands and was lost sight of.

Case No. 7.—H. C. Colored, male, aged twenty-eight. Gardener. This was a typical case of the florid type of phthisis which when first seen presented involvement of both lungs, and probably of other organs. He was given three injections of bacillus X. without benefit, growing progressingly worse. He has been lost sight of, but probably has died. The only feature of the case that is of interest is, that after the first injection the character of his sputa changed; as he expressed it, "became whiter and did not taste so bad."

Case No. 8.—A. T. G. Male, white, aged thirty-six. Postoffice clerk. Typical second stage, with involvement of whole right lung. T. B. in sputa. Patient in spite of advice is continuing his work, which is arduous and confining. After injection of bacillus X. he gained a few pounds and strength increased, and his night sweats and cough were reduced. He has recently moved to his home in the country, his present condition being worse than when first seen.

Case No. 9.—T. E. N. White, female, aged thirty-six. When first seen was in articulo mortis. Died a few days after injection of bacillus X. History tuberculosis of more than a year.

Case No. 10.—T. R. White, female, aged twenty. Music teacher. Has been failing for past six months. Has taken quinine for malaria, but without benefit. Blood was not examined, diagnosis being made on general symptoms, though she had no chills. Has felt worse in the afternoon, and has lost strength until she has been obliged to give up her work. She was sent to the country

by her family physician, and put on tonic treatment. Returned to Augusta after six weeks' vacation, condition about the same. When she came under my charge she was having night sweats, with cough, afternoon rise of temperature of about 1.5 degrees. Pulse 100, weak and thready. Respiration 18. Expectoration was scanty and mucoid, and T. B. were not found. Physical examination showed increased vocal fremitus and voice sounds over right apex with lengthened expiratory sound, and roughened vesicular murmur.

A diagnosis of incipient tuberculosis was made and 1 c. m of a seven-day culture of bacillus X. injected. Improvement was immediate and marked. Night sweats ceased within a day or so, as did cough and expectoration. Temperature and pulse became normal, and within three weeks patient regained her normal weight of 128 pounds, a gain of 8 pounds. She had in the meantime resumed her work, taking a limited number of pupils. She expressed herself as "feeling as well as ever," and is still in the same condition after the lapse of six months.

Her environment was not changed from what it was before the injection. I consider her clinically cured.

Case No. 11.—F. M. D. White, male, aged thirty-five. Superintendent. Father died of tuberculosis. Brother at age of thirty-one has had tuberculosis for several years. Patient consulted me for "throat trouble," because he at times spit up a little blood-streaked mucus. General health good, but has had "a cold" for several days. Several months ago he consulted a specialist about his throat and was assured that there was nothing serious the matter, and that the blood he saw came from the pharynx. Bleeds easily from nose and throat. No fever, no loss of flesh and feels well. Physical signs negative, except increased vocal fremitus, and slight prolongation

of expiratory sound over base of right lung in nipple line. Sputa examined a few days later showed numerous thick, short, tubercle bacilli. Patient was not able to discontinue work, but was much out of doors, and under modern methods of treatment gained in weight and seemed to be doing well. July 15th he came to my office spitting blood, and while there had a sharp hemorrhage of about 15 c. c. of red, fluid blood. At this time there were bubbling and fine rales over base of right lung anteriorly to axiliary line. A few days after he was given an injection of 1½ c. m. of forty-eight hours culture bacillus X. Improvement was immediate, as shown by decreased cough, and expectoration and general better condition of patient. Within three weeks he was given another injection of 1.5 c. c. of a seven-day culture of bacillus X. From this there was a marked reaction. A few hours after there was tingling in the arms and fingers and temperature 100 F. Place of inoculation was red, and increased in size until it extended over right pectoral region, and "burned for four days." Four days later there were dull pains over base of right lung. These lasted for thirty-six hours. Since this injection he has continued to improve. At present there is no cough nor other symptoms, and physical examination is negative. Such sputa as he is able to furnish is mucoid in character and no tubercle bacilli can be found.

He may be said to be clinically cured.

Case No. 12.—C. R. M. White, female, aged thirty-seven. Housewife. Mother of six children. Two died in infancy, two alive and well. First taken sick three years ago. Has had cough, expectoration and fever ever since. "Pneumonia" last summer. Sputa examined before patient was seen, was purulent and contained large numbers of tubercle bacilli.

July 22d patient was seen at her home. Physical signs of pulmonary tuberculosis third stage, with cavity in lower left lobe and marked consolidation of lower right lobe. Moist rales over whole lung area, and pronounced bronchial breathing. Patient very weak and emaciated. Respiration 50. Pulse 160. Temperature 102. Weight 74 pounds. A small woman, has never weighed more than 93 pounds. Her condition was such that injection of bacillus X. seemed useless, but 1 c. c. of a six-day bacillus X. culture was subcutaneously injected in left infraclavicular region. Reaction was marked, but the next day patient felt stronger and respiration was 36, pulse 132, temperature 100, at the same hour at which she was observed the day previous. A rapid, decided and entirely unlooked-for improvement in her condition ensued. Night sweats, which were severe and of nightly occurrence, ceased, expectoration gradually decreased and became less purulent, the respiration fell to 30 and the pulse gradually gained in volume and decreased in frequency until it reached about 100 per minute. At the same time appetite and strength increased and there was a steady gain in weight, so that at the present time she weighs 98 pounds, 5 pounds more than she ever weighed during health. Physical signs have improved in that rales have become finer and very much decreased in number. Cough has been much improved, at times has almost disappeared, though she has had several "colds" when for some days her cough has been severe. There has been no return of night sweats. Recently she has had an attack of pleurisy that has confined her to her bed for a week, but from this she has rallied.

Taking into consideration her condition before injection, the progress of improvement has been remarkable. Treatment has extended over seven months, during which

time she has had eight injections of bacillus X. Reaction is always marked, but within a few days she always feels decidedly better and she is as anxious for the injection as a toper for his dram.

The last examination of her sputa showed comparatively few tubercle bacilli.

She has had no treatment besides the injection of bacillus X. and some simple remedies given her from time to time by her family physician to meet special symptoms. She is still under treatment and observation.

She has a "better appetite than ever before in her life," does her own housework and feels fairly well.

Case No. 13.—Andrew Maseko, Zulu, male, aged twenty-six. Has been in this country at school for several years. History unsatisfactory, but has had cough for some time, and a hemorrhage three weeks ago, when he "spit a gallon of blood." Has fever, night sweats, cough and expectoration with tubercle bacilli in considerable numbers. Pulse 80, and quite feeble. Respiration 30. Physical signs of tuberculosis of lower right lobe, posteriorly. Weight 136 pounds.

Treatment has extended over seven months and has been confined to subcutaneous injections of bacillus X., of which he has received five. His present weight is 150 pounds; he has no cough, no night sweats, no fever and the injected area has cleared up, the only abnormality that can be made out being a harsh vesicular note.

Such sputa as he has recently been able to raise has been examined for tubercle bacilli, with negative result.

He may be said to be "clinically cured."

Case No. 14.—H. P., white, female, aged twenty-one. Family history good. She has been healthy until about a year ago, when she began to lose flesh and color and to have afternoon rise of temperature, which was attributed

to malaria. Soon she developed cough and expectoration. Tubercle bacilli were not found at this time, but were demonstrated a little later. Physical signs of pleurisy and general involvement of upper lobe of left lung were determined by several competent physicians.

November 18 she received 1 c. c. of a forty-eight-hour bouillon culture of bacillus X.

Improvement was immediate, as shown by recession of night sweats and a gain in weight of 20 pounds. Cough and expectoration practically ceased.

She now is free from fever and feels well, but does not stand exertion well and at times raises a small amount of sputa which contains a few beaded tubercle bacilli.

The following letter from Dr. Sigmon, interne in St. Joseph's Hospital, Savannah, Ga., is self-explanatory. These five patients had but one injection of bacillus X. All were in the third stage of consumption and tubercle bacilli were present in sputa.

Dr. T. E. Oertel, Augusta, Ga.

DEAR SIR: I should have written you sooner regarding results of the bacillus X. injections, but three of the patients left the hospital in about two weeks after the injections were made, and I have been unable to see them until this week.

Five patients in all were inoculated; three had a distinct rise of temperature within twenty-four hours after injection—from 1 to 2 degrees F. more than they usually had, and complained of more or less soreness in clavicular region. There was no perceptible change in the patient who had a cavity in right lung, whose condition was acute, beyond soreness. The girl had no temperature reaction, but night sweats ceased a day or two after injection; was very sore in clavicular region and much nauseated and vomited for several days after.

In all expectoration was diminished, in three cases completely stopped in two weeks and no tubercle bacilli could be found in those three—rales have disappeared, but resonance is still somewhat impaired. Appetite improved and night sweats ceased. Could get nothing definite regarding weight, but they appear to be better nourished and have a better color. I only have two of the patients here now—boy and girl. The boy is much emaciated—temperature in evening 102 F. or thereabouts; will not last long. The girl's cough is better, appetite better, has no night sweats and very little expectoration.

Yours fraternally,

(Signed) J. M. Sigmon.

TABULATION OF SEVENTEEN CASES NEGRO MALES IN STATE SANITARIUM FOR INSANE, MILLEDGEVILLE, GA.

No.	Stage.	No. inj'ct	Wgt.	Wgt. last taken.	Gain.	Age.	Result.
1	2d	5	153	190	37	24	Benefited.
2	3d	1	....	...	.	37	Died on third day after inj. In articulo mortis when inj.
3	2d	5	117	143	26	22	Benefited.
4	2d	3	120	107	..	25	No benefit. Died.
5	2d	5	139	156	18	27	Benefited.
6	2d	5	107	112	5	26	Benefited.
7	3d	2	115	...	..	59	Progressively worse. Died.
8	3d	1	..	...	.	40	No benefit. Died.
9	3d	1	112	....	.	30	Died.
10	3d	1	104	...	..	21	Died.
11	2d	4	110	139	29	34	Clinically cured.
12	2d	2	88	93	5	63	Improved.
13	2d	2	97	130	33	50	Improved.
14	2d	2	107	107	7	2	Improvement slight.
15	2d	2	118	125	7	55	Gain in weight and improvement.
16	2d	2	161	207	46	56	Clinically cured.
17	2d	1	136	140	4	27	Died.

First stage, formation of tubercles.
Second stage, softening of tubercles.
Third stage, presence of cavities.
Benefited, 8; clinical cures, 2.

Case No. 1.—P. R., mulatto, male, aged twenty-four, single. Farmer. Epilepsy. Mental condition good. General glandular enlargement. Tuberculosis began with acute onset about six weeks ago.

July 18, 1904, Patient fairly well nourished, weight 153 pounds. Temperature ranges from 100 in morning to 102 in evening. Pulse 104. Respiration 26. Cough, with muco-purulent expectoration (slight). No tubercle bacilli. Physical examination reveals high-pitched percussion note over upper lobe, right, in front, and over upper and middle lobes in axilla, with broncho-vesicular breathing and numerous crepitant and subcrepitant rales.

Injected 2 c. c. forty-eight hours bouillon culture bacillus X. in right infraclavicular space. No early effect on temperature, pulse and respiration. Slight tenderness on pressure over seat of injection, which disappeared on third day. August 6, weight 157 pounds.

August 10, 1904. Cought is somewhat lessened. Appetite somewhat improved, weight increased; otherwise same as on July 18, 1904. Physical signs virtually same.

August 28, 1904. Weight 160½ pounds. One c. c. fifty-hour bouillon culture injected in each infraclavicular space. No reaction on temperature.

September 18, 1904. Weight 164 pounds. Fever has continued irregular up to date. Cough slight. Scanty mucoid expectoration. Two c. c. injected in right infraclavicular space.

October 19, 1904. Weight 164½ pounds.

November 7, 1904. Weight 178 pounds. Two c. c. injected in right infraclavicular space (ninety-six hours bouillon).

December 13, 1904. Weight 188 pounds.

January 1, 1905. Injected 1.5 c. c. seventy-two hours, right.

January 14, 1905. Weight 190 pounds. Appetite has improved, cough less, very little expectoration. Still has fever. Pulse from 85-95. Respiration 24. Physical examination shows only limited expansion and high-pitched percussion note over upper right lobe.

Patient granted furlough on January 20, 1905.

Case No. 3.—G. O., negro, male, aged twenty-two, single. Farmer. Epileptic—insanity. Admitted December 18, 1903. Entrance examination reveals physical signs of tuberculosis in the upper and middle lobes right lung in front and in axilla.

July 18, 1904. Examination, cough constant and distressing, profuse expectoration; pulse from 120-130; respiration 30; temperature ranges from 100 a.m. to 103 p.m. Signs of consolidation over small area in lower lobe, right axillary region. Elsewhere chest is negative. Injection bacillus X.

July 20, 1904. Generally speaking, patient has improved considerably, although temperature range is practically the same. Coughs less; appetite increased, feels better, etc. Chest is negative, except for an occasional dry rale over lower lobe in axillary region.

No bacilli have been found in sputum.

It would seem that patient would have made more progressive and stable improvement, probably, but for his unfortunate mental condition. At irregular intervals of some six to eight weeks he has convulsions, frequently for several days, and during this time becomes excited and refuses nourishment. Although he is usually "up and about" after such an attack he invariably remains in bed for several days, and is worse generally.

Injections.						Weights.		
July	18, 1904,	2	c.c.,	52	hours, right.	July 18, 1904,	117	lbs
Aug	28, "	1	"	50	" each side.	Aug. 6, "	125½	"
Sept.	18, "	2	"	48	" right.	Aug. 27, "	129	"
Nov.	7, "	2	"	96	" "	Sept. 18, "	112	"
Jan.	1, 1905,	1.5	"	72	" "	Oct. 19, "	130	"
						Nov. 7, "	131½	"
						Dec. 13, "	139	"
						Jan. 14, 1905,	136	"
						Mch. 18, "	143	"

Injections not followed by any immediate reaction. The first weight was not influenced by one of the above described attacks, and the drop in September corresponds with one.

January 20, 1905. Expansion limited over upper lobe, right. Chest is resonant everywhere. Broncho-vesicular, harsh breathing over upper and middle lobes. Otherwise chest is negative. No rales. Pulse 90-100. Respiration 24. No continuous fever. Cough is quite frequent, but expectoration is scant.

March 18, 1905. General condition good. Physical signs improved. Weight 143, a gain of 26 pounds.

Case No. 5.—S. S., mulatto, male, aged twenty-six, single. Lumberer. Admitted August 21, 1903. About the middle June, 1904, it was first noticed that patient was not well.

June 27. Physical examination reveals signs of infiltration of right apex and of middle lobe in axilla. Emaciation, cough, muco-purulent expectoration; at times, pain in right side of chest, fever, rapid pulse and respiration. Temperature ranges between 99 a.m. to 102 p.m.

July 18, 1904. Consolidation of upper lobe, right. Commencing consolidation of middle lobe. General condition much like above, except that is worse. Injection bacillus X.

August 10, 1904. Physical signs over upper lobe are same; middle lobe is negative. General condition has

improved greatly since injection. Within three days after injection, he arose from bed, appetite much better, cough less, stronger and feeling better generally. Temperature seldom above 100 now.

September 12, 1904. Physical signs of consolidation of upper right lobe, impaired resonance, diminished expansion, rales, etc., over whole front of right chest. Patient is worse in every way. Cough distressing, appetite failing, weaker, etc.

No tubercle bacilli were found in sputum.

Injections.		Weights.	
July 18, 1904,	2 c.c., 52 hours, right.	July 18, 1904,	139 lbs.
Aug. 28, "	1 " 50 hours, each side.	Aug. 6, "	151½ "
Sept. 18, "	2 " 48 hours, left.	Aug. 27, "	158 "
Nov. 7,	2 " 96 hours, right.	Sept. 18, "	155½ "
Jan. 1, 1905,	1.5 " 72 hours, right.	Oct. 19, "	153 "
		Nov. 7, "	149 "
		Dec. 13, "	149 "
		Jan. 14, 1905,	152 "
		Mch. 18, "	156 "

Injections were unattended by general or local reactions (immediate).

Early in September patient began to become worse, but slowly. He soon came to an apparent standstill, and after remaining there for several weeks has again begun to improve.

Since the last injection, particularly, his general health has improved considerably, at the same time that he has become worse mentally. Indeed, it is only of late that he has shown any signs indicative of insanity.

January 20, 1905. Physical examination shows slightly diminished expansion over right apex, impairment of resonance, diminution in intensity of breath, sound and small moist rales. Middle lobe again negative. Consolidation of upper portion of lower right lobe, behind. Seldom has any fever at all. But cough is worse than about

one month ago, and expectoration is profuse. Mental condition much worse for past two months.

March 23, 1905. Cough less frequent, especially in daytime. Expectoration much less than heretofore. Has fever at times. Pulse 120. Respiration 22-26. Impaired resonance about right apex in front, dullness over right apex, front. Flatness over upper and middle lobes, axillary region; dullness over small area front, upper part, lower lobe, right. Crepitant and subcrepitant (and an occasional sibilant rale) rales heard all over right lung except base, front.

Left lung is negative everywhere. There is a gain of 18 pounds in his weight.

Case No. 6.—B. H., mulatto, male, aged twenty-six, married. Laborer. Admitted April 11, 1903. Family history: Father living, mother dead—of tuberculosis. Eight brothers. One dead, of tuberculosis. Two died in infancy of unknown causes. Two sisters, both dead of tuberculosis.

July 11, 1904. Duration of tuberculosis unknown. Patient has not complained until three or four days ago. Physical examination reveals signs of consolidation of upper lobe, left, about apex. There is diminished expansion, dull, moist rales, prolonged expiration, etc., over this area. There is cough, profuse, purulent expectoration and fever. No bacilli found in sputum. Temperature ranges from 99.5 a.m. to 102 p.m.; has had several hemorrhages during past week, and sputa is blood-streaked. Injection bacillus X.

August 10, 1904. Patient has improved steadily since injection. Got up from bed three days after; appetite has improved considerably. He says he feels better. Limitation of expansion over left apex is not as pronounced as before. Percussion note is only a little higher in pitch, and breath sounds, while still harsh, are not as

much so as before. No rales are to be heard. Expectoration decreased in quantity, and blood disappeared from it.

He remained in this improved condition for about two weeks, became slowly worse for about six weeks, and since then has improved steadily up until the present time.

Injections.				Weights.			
July 17, 1904,	2	c.c.,	52 hours, left.	July 17, 1904,	107	lbs.
Aug. 28, "	1	"	50 hours, each side.	Aug. 6, "	112½	"
Sept. 18, "	2	"	48 hours, left.	Aug. 27, "	110½	"
Nov. 7, "	2	"	96 hours, left.	Sept. 18, "	106½	"
Jan. 1, 1905,	1.5	"	72 hours, left.	Oct. 19, "	108	"
				Nov. 8, "	109	"
				Dec. 13, "	115	"
				Jan. 14, 1905,	115	"
				Mch. 18, "	112	"

Injections were not followed by any immediate general reactions, or more local than follows an ordinary hypodermic.

January 14, 1905. Physical examination reveals slight diminished expansion, impairment of resonance, prolonged expiration, roughening of breath sounds and an occasional sibilant rale over left apex only. Elsewhere upper lobe, left, is hyper-resonant. No evidence of involvement elsewhere, either in left or right lung. Afternoon temperature seldom rises above 100, and often not so high. No hemorrhages since first injection.

Case No. 8.—P. F., male, negro, aged forty-six, married. Farmer. Chronic mania. September 18, 1904. Consolidation of upper lobe right lung; beginning infiltration of left apex. Very weak, emaciated. Confined to bed. Temperature continues high, pulse rapid and weak (140-150 per minute). No bacilli found. Injected 2 c. c. forty-eight hours right infraclavicular region. No reaction. Progressively worse, until September 24, 1904, died.

This is a typical case of the third class, which, on autopsy, showed advanced pulmonary tuberculosis, but in the sputa of which no tubercle bacilli were found.

Case No. 11.—R. F., mulatto, male, aged thirty-four, married. Barber. Admitted July 19, 1904. Entrance examination: High-pitched note over front of upper right lobe and in right axilla, high up. Diminished expansion, some flattening, prolonged expiration and a few moist rales. Slight cough, little expectoration. Examination pulse, 100-110 2-3. No bacilli found in sputum.

August 28, 1904. Condition generally about same as above, except that cough is more frequent. Signs of infiltration of upper lobe, right. Chest elsewhere negative. Injection bacillus X.

Temperature began to rise about sixteen hours after injection (first), at twenty-six hours after injection it had reached 101.2, when it fell to normal in about eight hours more. Was normal before injection; pulse and respiration were accelerated accordingly, reaching respectively 120 and 34. No local reaction, and no reaction after subsequent injections.

Patient has improved progressively and uninterruptedly since first injection till now (January 14, 1905). Mental condition at no time has been better than on admission and often is worse.

Injections.				Weights.			
Aug. 28, 1904,	1	c.c.,	50 hours, each side.	Aug. 29, 1904,	110	lbs.
Sept. 18, "	2	"	48 hours, right.	Sept. 18, "	114	"
Nov. 7, "	2	"	90 hours, right.	Oct. 19, "	126	"
Jan. 1, 1905,	1.5	"	72 hours, right.	Nov. 7, "	129	"
				Dec. 13, "	132	"
				Jan. 14, 1905,	136	"
				Mch. 20, "	139	"

January 20, 1905. Coughs only occasionally, no expectoration, no fever. Pulse 82-88. Respiration 20. Feels "a hundred times better" than on admission. Appetite splendid.

Physical examination: No emaciation, expansion only slightly limited over upper lobe, right. Tactile and vocal fremiti increased over same area, but no dullness, except

for a small area high up in right axilla. An occasional dry rale, with expiration, over upper right lobe. Elsewhere negative.

March 26, 1905. Improved in every way. Does not cough at all. Pulse 70-80. Respiration 20-24. Expiration fuller and not limited. Lungs are resonant throughout. Tactile and vocal fremiti negative.

At one examination, for about one minute's time, a fine, high-pitched sibilant rale could be heard over lower right lobe, axillary region.

Case No. 12.—B. S., mulatto, male, aged sixty-three. No occupation. Idiocy, Cretin. Admitted April 16, 1903. Entrance examination: Chest negative. Tuberculosis first recognized about six weeks ago. No bacilli found in sputum.

November 7, 1904. Consolidation of upper lobe, right about apex; high-pitched percussion note, rales moist and bronchial breathing about left apex, posteriorly. Very little cough, no expectoration; appetite very poor.

Injections.	Weights.
Nov. 7, 1904, 2 c.c., 96 hours, right side.	Nov. 7, 1904, 88 lbs
Jan. 1, 1905, 1.5 c.c., 72 hours, right side.	Jan. 14, 1905, 98 lbs.

No reactions.

January 20, 1905. Patient, except for gain in weight, is in virtually the same condition as above. Has never gotten up out of bed for any length of time.

Inoculations discontinued February 1, 1905.

Case No. 13.—T. C., negro, male, aged fifty, widower. Huckster. Dementia, senile. Admitted June 11, 1904. Entrance examination of chest negative. No bacilli have been found in sputum.

November 7, 1904. Extreme emaciation and prostration. Appetite completely gone. Temperature ranges from 98 in a.m. to 102 in p.m. Pulse very weak, 100-110. Respiration 26. Cough with profuse purulent ex-

pectoration, night sweats, etc. Upper lobe, left, consolidated around apex and a small area of consolidation in lower lobe, right post.

Injections.	Weights.
Nov. 7, 1904, 2 c.c., 96 hours, left.	Nov. 7, 1904, 97½ lbs.
Jan. 1, 1905, 1.5 c.c., 72 hours, left.	Jan. 14, 1905, 122½ lbs.
	Mch. 18, 1905, 130 lbs.

There was practically no change in patient's condition until about four weeks after first injection, when he began to improve in every way, and has continued to do so until now, March 18, 1905. Area of consolidation persists.

Case No. 16.—S. D., negro, male, aged fifty-six, married. Farmer. Admitted September 22, 1904. Entrance examination, chest negative.

November 7, 1904. Nutrition fair, weak and confined to bed. Temperature curve irregular, from 99.5 in a.m. to 102.5 p.m. Pulse 100-110. Respiration 28. Little cough, with scanty expectoration. Small area of consolidation in left lower lobe, post., and some infiltration of upper lobe about apex. No bacilli found in sputum.

Injections.	Weights.
Nov. 7, 1904, 2 c.c., 96 hours, left.	Nov. 7, 1904, 151 lbs.
Jan. 1, 1905, 1.5 c.c., 72 hours, left.	Dec. 13, 1904, 196 lbs.
	Jan. 14, 1905, 207 lbs.

Improvement began immediately after first injection, and has rapidly progressed until now, January 20, 1905. Got up out of bed on the fourth day following. Now he has no cough, no fever, pulse 90-100, respiration 24. Except for freer expansion over upper lobe, left, physical signs are same. Says he feels *well*. Mental condition has improved only a very little.

April 16, 1905. S. D. still continues to be doing well. Sometimes temperature reaches 99 3-5 in p.m., never higher. Respiration 20. Pulse 80. Only physical signs are some impairment of resonance and a few moist rales (occasionally) over small area in lower right lobe, post. Has no cough. No night sweats. Says he is well and never feels badly.

THIRTY-SEVEN CASES—EIGHTEEN INCREASED IN WEIGHT —THREE CURED. TABULATION OF CASES IN INSANE COLORED FEMALES.

No.	Stage.	No. Inj.	Wgt. Inj. begun.	Wgt. term treated.	Age.	Remarks.
1	3d	2	146.6	117	55	Inj. July 17, Aug. 28. Died Sept. 18.
2	3d	2	94	....	..	Inj. July 17, Aug 28. Died Oct. 10.
3	3d	1	81	...	35	Inj Aug. 28. Died Sept. 12.
4	3d	1	67	....	2[illegible]	Inj. Sept. 18. Died Nov. 1.
5	Intest	1	.....	...	46	Inj. July 17. Died Aug. 28. T. B. from rectal disch. Cerebral tumor.
6	3d	1	.....	....	40	Died Aug. 14. Autopsy T. B.-P.
7	3d	1	.....	....	19	Inj Sept. 17. Died Oct. 24.
8	3d	1	93.5	90.2	20	Inj Aug. 28–Sept. 29. Chill 20–21. Oct. 11 died Pulse 102–104. Resp. 40–50 from 1st.
9	3d	1	.....	....	22	Florid type T. B. P. Inj. Nov. 6. Died Nov. 25. Autopsy Con.
10	3d	1	.....	...	20	Inj Nov. 7. Died next day. On verge of dissolution. Pul. 14; Resp. 38.

No.	Stage.	No. Inj.	Wgt. Inj. begun.	Wgt. term treated.	Gain.	Age.	Remarks.
11	3d	1	.....	...	....	35	Inj. Nov. 6. Died.
12	3d	1	60	55	....	18	Inj. Nov. 6. Died Nov. 20.
13	3d	2	78.3	77.4	..	40	Inj Oct. 18, Nov. 6. Died Dec. 15. Autopsy T. B. general.
14	2d	1	123	108.2	....	30	Inj. Nov. 6. Died Dec. 19. Tub. Pleurisy. Autopsy Pl lungs.
15	3d	2	104	.....	....	..	Inj. Sept. 28, Nov. 6. Died Dec. 25.
16	2d	2	106.9	114.4	13.2	45	Gained 20lbs ; marked Imp. After Inj. stopped began to lose, going down rapidly
17	3d	1	95.4	90	....	27	Inj. Nov. 6. Died 27. Florid type.
18	2d	5	102	110	8	45	Inj. July 17–Aug. 8–Sept. 8–Oct. 6–Nov. 1. Ex. Jan. 1. Phy. signs abt. same Gen. T. B.
19	2d	3	103.4	105.4	2	43	For a time Imp. after Inj. ceased, rapid decline and death.
20	2d	4	89.8	118 8	29	50	Rept. in full. Benefited.

Number.	Stage.	No. Inj.	Wt. (1)	Wt. (2)	Gain.	Age.	Remarks.
21	2d	3	87.5	72	...	30	Not improved.
22	2d	3	96.8	131.2	34.4	23	Diag, Pulm. T/B. Phys. Ex. neg. Jan. 26. Clinically cured.
23	2d	5	94 6	116.6	22	25	Gen'l. T/B. Very much improved.
24	3d	2	59.4	53	....	25	Died September 25th.
25	2d	4	97.2	149.6	52.4	38	T/B. in sputa Aug. 28, 1904. Clinically cured.
26	2d	5	96.8	103	6	78	T/B. in sputa. Rept. in full. Benefited
27	2d	3	96.8	101.2	8	51	Improved.
28	2d	5	84.9	121.4	36.7		Rept. in full. Clinically cured.
29	2d	5	107.4	114.4	7	35	Benefited.
30	2d	5	114 6	119.6	5	37	Slight benefit.
31	2d	5	97	114.4	17.4	35	T/B. in sputa Sept. 28, 1903. Inj. July 17. Gen'l. T/B. Benefited.
32	2d	1	81.8	81.8	4.4	16	Fluid L. P.: cavity. Phys. Signs. T/B. Last ex. Jan. 25th. Died.
33	...	4	93.72	117.5	23.7	16	Cold abscesses and sinuses. Rept. in full. Cured.
34	2d	2	99.4	107.8	8.4	24	T./B. not found in sputa. Benefited.
35	2d	5	99 6	119.6	20	33	Much benefited.
36	2d	1	150.4	168.5	18.1	24	Phys. signs. improved to considerable extent. Benefited.
37	2d	1	123	110			Not improved.

Case No. 1.—L. S. Admitted July 7, 1904. History: C|F 55. Weight 66.2. Height 154 c. m. Eight children. Washerwoman. Duration, six months. Signs of mitral incompetency, with cardiac hypertrophy. Femoral hernia.

Examination, July 17, 1904: Signs of extensive involvement of right lung, with pleural effusion same side. This fluid has characteristics of tuberculosis effusion. July 17, 1904, 1 c. c. bacillus X. injected in right infraclavicular space. Temperature ranges from 98-101. Pulse about 100. Respiration from 30-45. No marked change in pulse or temperature.

Five hundred c. c. fluid drawn from right plural cavity on July 25, 1904. Temporary improvement in pulse, temperature and respiration. Injected again August 28, 1904, 1 c. c. into plural cavity and 1 c. c. in right infra-

clavicular space. This was followed by slight rise in temperature. Second day after injection right breast was swollen to about four times size of left and was very tender. This began to subside, but the patient's condition grew rapidly worse and her feet were swollen and abdomen contained fluid on September 1. Died somewhat suddenly on September 8. Autopsy showed effusion and tubercular processes in both lungs, with extensive involvement and collapse of right. Heart hypertrophied and somewhat dilated and right heart considerably dilated. Immediate cause of death was probably acute dilation of heart. This patient was a subject of chronic nephritis. Weighed only once, August 20, 1904, 58.6 pounds.

Case No. 8.—L. F. Colored female. History: Admitted August 17, 1904. Aged twenty years. Single. Farm hand. Duration of insanity, six weeks. Admittance weight, 42.5 pounds. Physical signs of advanced tuberculosis on left side. Afternoon temperature, cough and night sweats. Patient was confined to bed almost from day of admittance. On August 26, 1904, temperature reached 105 3-5 in afternoon. Injected 2 c. c. at 11 a.m. August 28, 1904. Had no apparent effect. Injected again September 18, 1904, 2 c. c. forty-eight hours culture. No apparent effect. Patient had a chill on 20th and another on 21st. For more than forty days patient's temperature ranged from 102 to 104 in the axilla. Pulse was very rapid at times. At times it could not be counted with accuracy. Respiration from 40 to 50. Injected again November 6, 1904. Died.

Weight, August 29, 1904, 42.5 k.; September 20, 41.8 k.; October 20, 1904, 39.1 k.; November 19, 1904, 41 k.

It may be said in connection with her case that she was in the third stage of tuberculosis when admitted, and that it was rather remarkable that she lived so long.

Case No. 10.—A. V. Admittance history: Colored female. Aged twenty. Mother of one child. Housekeeper. Duration of insanity one week. Physical examination negative. On date of injection, November 7, 1904, showed advanced tuberculosis in both lungs. Note was made that "patient appeared to be on verge of dissolution." Pulse 144, respiration 38, irregular. Injected 1½ c. c. over left side. No benefit. Died next day.

Case No. 11.—E. B. Admission history: Colored female. Aged thirty-five. Five Children. Laborer. Duration of insanity, two weeks. Chest thin, expansion rather poor. Liver extends within two fingers breadth of umbilicus. Badly lacerated cervix. Was rather feeble, and slight afternoon temperature at times. Patient was very much excited and noisy for some time after admission. Face and hands were swollen at times. Urine negative.

Examination November 18, 1904: Emaciation, feet and hands swollen. Pulse rapid. Moist and dry rales heard over both lungs. No dullness. Cough. Afternoon temperature on day of injection (November 6, 1904). There were signs of advanced lesion on right side; 1½ c. c. were injected on this date, with no apparent benefit. The patient died.

Case No. 12.—S. M. Imbecile. Received February 29, 1904. Single. Eighteen years old. Entrance examination: Pulse and temperature normal. Respiration slightly accelerated. Pulsation seen in first right and second left interspace. Systolic murmur heard over same area (probably hemic). Chest flat. Expansion poor. Stomach tympany extends almost to second left interspace. Glandular enlargement. Weight, 37.8 k. Examination September 16, 1904: Considerable loss of flesh; pain in head and region of stomach. No cough; irregular temperature. Pulse weak, but about normal in

frequency. Enlarged glands in right axilla and one below right clavicle. Diminished expansion and roughened breath sounds over right upper lobe.

Inoculated September 18, 1904, 2 c. c. over right upper lobe. No marked change in temperature chart until November 1st and 2d, when temperature rose to 103.2 in axilla. Vomited at times, and bowels were loose. Inoculated November 6, 1904, 1½ c. c. Died.

Weight September 20, 1904, 27.3 k. Weight October 20, 1904, 25.2 k., and on November 20, 1904, 25.4 k.

Case No. 13.—J. J. Chronic mania. Aged forty years. Admitted February 8, 1900. Weight 46.4. Urine contained trace of acetone, otherwise negative.

In September, 1904, patient had high, irregular fever, with signs of tuberculosis (pulmonary). Tubercle bacilli in sputum not found. Was inoculated September 18, 1904, 2 c. c. in left infraclavicular space. There was no apparent reduction of fever for some weeks. Reinoculated November 6, 1904, without any apparent benefit.

	Weight.
August 20, 1904	35.6
September 20, 1904	34.3
October 20, 1904	34
November 19, 1904	35.2

Patient died December 15, 1904. Until this date she was rarely in bed; walked around in ward and went into yard when weather permitted. On day of death, she became unconscious and nurse said she fell from chair about 8 a.m. When seen by physician, about 11 a.m., she was comatose. Pulse normal frequency, but weak; respiration forced. No paralysis. She died about 12 noon. Autopsy: Right lung contained numerous hard, small nodular masses, which were caseous in places. Major portion of upper left lobe was involved in large cavity, some parts of which were surrounded by well-marked limiting membrane. The remainder of the upper lobe

was consolidated. A considerable portion of lower lobe was also consolidated and contained numerous caseating masses.

Left kidney was almost a shell and contained about 1½ thick, creamy pus. The pyramids were in some places wholly destroyed—in the kidney substances were seen, some small white hard nodules. The right ureter was very much enlarged and hard throughout its length. The bladder contained a moderate amount of purulent urine. The wall contained in places numerous small, white, hard nodular masses.

Case No. 16.—R. O. Melancholia rep. Admitted August 18, 1904. Aged forty-five. Laundress. Nine children. Entrance examination: Slight blowing murmur, systolic at apex. Right side of chest flattened, suppression of vesicular murmur, few moist rales and increased tactile fremitus over upper right lobe.

Examination November 6, 1904: Marked prolongation of expiratory sound; increased fremitus and high-pitched percussion note over right upper lobe.

Inoculated Sept. 18, 1904, 4 hours., culture 2 c.c., right infraclavicular space.

Inoculated November 6, 1904, 72 hours, culture 1½ c.c., right infraclavicular space.

	Weight.
Aug. 18, 1904	48.6 K.
Sept. 20, "	51.2 K.
Oct. 20, "	57 K.
Nov. 19, "	63.2 K.
Jan. 26, 1905	58 K.
Mch. 18, "	52 K.

At the time injections were discontinued patient was rapidly improving. December 28 she had a violent maniacal attack and has grown progressively worse. When injections were stopped she had gained 32 pounds and physical signs were much improved.

Case No. 20.—H. W. C. F. Melancholia acute. Ad-

mitted November 19, 1903. Fifty years. Cook. Weight 41.4. Apical systolic murmur, translated slightly to left. Murmurs heard in both second interspaces (possibly hemic). Lungs negative. Urine contained trace of nucleoalbumin.

July 14, 1904: Some emaciation, night sweats, very little cough, diminished expansion, few medium moist rales heard over left side. Temperature 99.1. Pulse 100.

July 26, 1904. Few moist rales heard over upper left lobe and friction sound in inferior axillary region. From this date until about middle of December patient was subject to general anasarca and the pleural and abdominal cavities contained fluid at all times. This trouble subsided under proper treatment. Urine showed hyaline and granular casts and some albumin.

Inoculations.	Weights.
July 17, 1905, 1 c.c., 28 hours.	July 16, 1904, 40.8 K.
Aug. 18, " 2 c.c., 48 hours.	Sep. 20, " 40.4 K.
Nov. 6, " 1½ c.c, 72 hours.	Oct. 20, " 45.6 K.
Jan. 1, 1905.	Nov. 19, " 40.1 K.
	Dec. 31, " 42.6 K.
	Jan. 20, 1905, 54 K.

Remarks.—Patient had no trouble from first inoculation. About three hours after inoculation, on August 28, patient had chill, followed by rise of temperature from about normal to 101.1. Both breasts were somewhat swollen and tender, more especially that on the inoculated side (right). A tender tumor mass developed at seat of puncture, but appeared to be subsiding on August 31; however fluctuation was noted, and about two ounces of thick yellow pus was evacuated on September 6. Temperature at that time had gradually arisen to 103. However it did not reach normal again until September 16. After abscess had developed, and before it was opened, had a very persistent and uncontrollable cough. This gradually subsided after abscess was opened.

After inoculation on November 6 the right breast was again considerably swollen and tender, but this gradually subsided.

The temperature was irregularly high after the two inoculations mentioned.

Potassium acetate and infusion digitalis and rest in bed was method of treatment when fluid in cavities and tissues appeared.

Examination on January 26, 1905: Signs of small amount of fluid both cavities. Breath sounds roughened over upper left lobe. Friction sound heard over whole lower right lobe.

Last inoculation December 11, 1904. During latter part of March patient began to fail rapidly and died April 5, 1905.

Case No. 22.—L. L. Melancholia, acute. C. F. Aged twenty-three. Admitted November 9, 1903. Single. Farm help. Weight 53.1 k. Chest somewhat flattened. Vaginal discharge. Mucous membrane of vagina excoriated in places.

Patient had a hard attack of chorea soon after admission, which has recurred at times. Urine, serum and nucleo-albumin and epithelial, coarse and finely granular casts.

August 22, 1904. Cough. Right infraclavicular space deep. Some suppression of vesicular murmur over same area.

November 6, 1904. On right front, vocal fremitus increased, harsh breath sounds—no rales. Impaired resonance over left upper lobe. During first part of September temperature ranged very high, reaching 104.4 on the 8th.

Diagnosis: Pulmon, T. B. Sputum examined neg.

Inoculations.	Weights.
Sep. 18, 1904, 2 c.c., 48 hours.	Sep. 20, 1904, 44 K.
Nov. 6, " 1½ c.c., 72 hours.	Oct. 20, " 48.4 K.
Jan. 1, 1905, 1½ c.c., 72 hours.	Nov. 19, " 54.4 K.
	Dec. 31, " 56.6 K.
	Jan. 20, 1905, 59.6 K.

Remarks.—Abscess developed at seat of puncture made on September 18, 1904. Abscess was opened and healed readily. This patient's fever subsided to normal after abscess was opened and did not rise above 101.3 for about two months, when chart was discontinued.

January 26, 1905. Physical examination negative.

April 12. Patient seems to be entirely well. Clinically cured.

Case No. 23.—M. H., Mania, acute. Received September 26, 1899. C. F. Aged twenty-five years. Married: two children. Housekeeper. Weight 56. Heart action slightly irregular. Lungs negative. Slight tenderness over right ovarian region.

On April 10, 1904, an exploratory laparotomy was done. The abdominal cavity was full of fluid, which was apparently encysted, thus giving signs of ovarian cyst. The peritoneum, both layers, was found to be the seat of numerous small white hard nodules. About two gallons of fluid was evacuated and incision closed. Diagnosis: Tubercular peritonitis. Recovery from operation was uneventful, and followed by considerable improvement in general health. A few months after operation a sinus was found in seat of incision. This discharged very freely for about two months. Previous to operation patient's abdomen had been tapped several times—fluid reappearing each time.

July 17, 1904. Evidence of fluid in both pleural cavities, and a small amount in abdomen. Slight muco-purulent discharge from sinus. Considerable involvement of both lungs, especially the right upper and middle lobes.

Inoculation bacillus X. over right apex and about sinus in abdominal wall. November 7, 1904. Signs of involvement of right apex. However, signs are not as marked as formerly. No signs of fluid noted.

Inoculations.	Weights.
July 17, 1904, 1 c.c., 28 hours, R. S.	Aug. 20, 1904, 43.6 K.
1 c.c., 28 hours, around sinus.	Sept. 20, " 46.2 K.
Aug. 28, " 2.5c.c., 48 hours.	Oct. 20, " 49.1 K.
Sept. 18, " 2 c.c., 48 hours.	Nov. 19, " 50.3 K.
Nov. 6, " 1.5c.c., 72 hours.	Dec. 31, " 53.0 K.
Jan. 1, 1905, 1.5c.c., 72 hours.	Jan. 20, 1905, 53.0 K.

January 26, 1905. Examination, general appearance good. Patient fat. Slightly elevated percussion note behind left apex. Right lung, dullness and moist rales over middle lobe. Probably small amount of fluid in right pleural cavity. Sinus in abdomen appears to have healed completely. Abdomen somewhat distended, but no signs of fluid.

April 15, 1905. Condition much improved. Seems on road to recovery. There has been a progressive gain in weight amounting to 22 pounds.

Case No. 25.—K. B. C. F. Aged thirty-eight. Admitted May 6, 1904. Weight 57.8K. Examination negative. August 10, 1904. Dullness and moist rales over lower right lobe. Dullness over middle lobe. Tubercle bacilli in sputa. August 28, 1904. Fever. Cough. Muco-purulent expectoration. Well advanced second stage.

Inoculations.	Weights.
Aug. 28, 1904, 2 c.c., 48 hours, R.	Aug. 20, 1904, 44.2 K.
Sept. 18, " 2 c.c., 48 hours, R.	Sept. 20, " 51.0 K.
Nov. 6, " 1.5 c.c., 72 hours, R.	Nov. 19, " 64.2 K.
Jan. 1, 1905, 1.5 c.c., 72 hours, R.	Oct. 20, " 58.1 K.
	Dec. 19, " 67.0 K.
	Jan. 20, " 68.0 K.

Examination November 7, 1904: Negative.

Examination January 25, 1905: Negative. Patient considered well.

Case No. 26.—E. S. Dementia, senile. C. F. Admitted April 20, 1901. Weight 36.2 kilos. Aged seventy-eight. Entrance examination negative.

Bacilli in sputa March 3, 1904. No recorded examination until July 17, 1904. Limited expansion on left side. Diminished vesicular murmur and high-pitched percussion note over left apex. Crepitant and subcrepitant rales over lower lobes of both lungs.

Inoculations.			Weights.	
July 17, 1904.	1 c.c., 28 hrs.,	Interscapular	L. July 14, 1904,	44.0 K.
Aug. 28, "	2 c.c., 48 hrs.,	"	L. Aug 20, "	42.8 K.
Sep. 18, "	2 c.c., 48 hrs.,	"	L. Oct. 20, "	41 0 K.
Nov. 6, "	1.5 c.c., 72 hrs.,	"	L. Nov. 19, "	41.0 K.
Jan. 1, 1905.	1.5 c.c., 72 hrs.,	"	L. Dec. 20, "	46.2 K.
			Jan. 20, 1905,	47.0 K.

Remarks.—Patient had malarial chills July 31 and August 2. Went home on three weeks' furlough during September. Apparently lost some flesh while at home.

Examination January 26, 1905: Well nourished. Expansion rather poor. Some moist rales in both axillae. Prolonged expiratory murmur behind left apex. Some harshness over apex anteriorly. Elsewhere vesicular murmur good. April 12. Condition remains good.

Case No. 27.—A. W. C. F. Admitted May 11, 1896. Aged fifty-one years. Married. Two children. Laundress. Brother tubercular. No entrance examination. September 16, 1904. Poorly nourished. Cough. Marked retraction in 9-10 right side. Hyperresonance over right back. No rales. Roughened breath sounds over left front and also increased transmission of spoken voice. Respiration 48.

Inoculations.		Weights.	
Sept. 16, 1904,	2 c.c., 48 hours, R.	Sept. 20, 1904,	44.0 K.
Nov. 6, "	1.5 c.c., 72 hours, R.	Oct. 20, "	43.8 K.
Jan. 1, 1905,	1.5 c.c., 72 hours, R.	Nov. 19, "	46.0 K.
		Dec. 31, "	46 0 K.
		Jan. 20, 1905,	46.0 K.

January 26, 1905. Diminished expansion over left,

especially below. Small amount of fluid in left pleural cavity. April 14, 1905. Very little cough. Some diminution over left side, also some suppression of vesicular murmur over same side. No rales. Weight 47.6 kilos. Condition much improved. Gain of 3.6 kilos.

Case No. 28.—Nancy Rutherford, C. F. Admitted January 29, 1900; married; laborer. No entrance examination.

July 17, 1904. Flattening, diminished expansion, and dullness over right apex; also broncho-vesicular, and a few subcrepitant rales. Vesicular murmur not heard over middle lobe. Diagnosis: Pulmonary tuberculosis. Inoculation B. X.

July 28, 1904. Friction sounds in left axilla in addition to above.

November 7, 1904. Expansion good. Percussion note slightly elevated on right. No rales. Vesicular murmur good.

Inoculations.		Weights.	
July 17, 1904,	1 c.c., 28 hours, R. front.	July 14, 1904,	38.5 K.
	1 c.c., 28 hours, R. back.	Aug. 20, "	45.8 K.
Aug. 28, "	3 c.c., 48 hours, R.	Sept. 20, "	48.0 K.
Sept. 18, "	2 c.c., 48 hours, R.	Oct. 20, "	50.0 K.
Jan. 1, 1905,	1.5 c.c., 72 hours, R.	Nov. 19, "	52.1 K.
Nov. 6, 1904,	1.5 c.c., 72 hours, R.	Dec. 31, "	54.6 K.
		Jan. 20, 1905,	55.2 K.

January 26, 1905. Physical examination negative. Patient removed from tubercular ward. The last report from this patient as follows:

April 15, 1905. Considerable wasting. Pulse 100. Temperature 99 2-5. Mental condition bad. Right lung negative. Left lung, marked diminution of expansion. Large number of fine rales over lower lobe anteriorly. Dullness over lower lobe posteriorly. Weight 47.2 kilos.

Case No. 29.—Decia Hamilton, C. F. Received November 17, 1901; thirty-five years of age; married; two children; laborer. No entrance examination.

July 17, 1901. Chest very well developed. Expansion fair. Expansion lags on left. Few medium and moist rales over middle lobe of right lung. Moist rales over back.

July 25, 1904. Physical signs somewhat better.

January 26, 1905. Well nourished. General appearance good. No physical signs noted.

Inoculations.		Weights.	
July 17, 1904,	1 c c., interscapular 48 hrs.	July 14, 1904,	49.0 K.
Aug. 28, "	2 c.c., right, 48 hours.	Aug. 20, "	48.6 K.
Sept. 28, "	2 c.c., right, 48 hours	Sept. 20, "	50.0 K.
Nov. 6, "	1.5 c.c., right, 72 hours.	Oct. 20, "	49.1 K.
Jan. 1, 1905,	1.5 c.c , right, 72 hours.	Nov. 19, "	50 0 K.
		Dec. 31, "	51.8 K.
		Jan. 20, 1905,	52.0 K.

Case No. 31.—Isabelle Pullins, C. F. Admitted May 11, 1896. No entrance examination. T. B. in sputum September 28, 1903.

July 17, 1904. Fairly well nourished mulatto woman. Marked sinking of clavicular spaces. Increased vocal fremitus. High pitched percussion note. Prolonged and harsh expiratory murmur over upper right lobe anteriorly. Marked dullness and increased vocal fremitus over lower right lobe. Physical signs of tuberculosis of right lung.

Inoculations.		Weights.	
July 17, 1904,	1 c.c., 28 hours, R.	July 14, 1904,	54.5 K.
Aug. 28, "	2 c.c., 48 hours, R.	Aug. 20, "	44.2 K.
Sept. 18, "	2 c.c., 48 hours, R.	Sept. 20, "	45.0 K.
Nov. 6, "	1.5 c.c., 72 hours.	Oct. 20, "	44 1 K.
Jan. 1, 1905,	1.5 c.c., 72 hours.	Nov. 19, "	44.3 K.
		Dec. 31, "	48.8 K.
		Jan. 20, 1905,	52.2 K.

Patient has had several attacks of diarrhea. During the latter part of August she had a very severe attack, became very weak, her pulse ranging from 130 to 140 for about one week. She very probably has tubercular enteritis.

January 26, 1905. Chest flat; expansion very good. Few friction sounds in lower axillary region. Vesicular

murmur very good; abdomen somewhat large; skin smooth; physical signs of fluid; moderate amount in abdomen. General condition is much improved.

Case No. 33.—Ophelia Shanks, C. F. Epileptic; admitted December 14, 1901. Large amount of acetone in urine, otherwise entrance examination negative. For past eighteen months patient has had numerous cold abscesses formed around neck and axilla. When first inoculated there were several sinuses under and in front of left axilla.

Inoculations.	Weights.
Aug. 28, 1904, 2 c.c., around sinuses,	Admission, 42.6 K.
Sept. 18, " 2 c.c., around sinuses,	Oct. 20, 1904, 50.0 K.
Nov. 6, " 1.5 c.c., around sinuses,	Nov. 19, " 49 0 K.
Jan. 1, 1905, 1.5 c.c., around sinuses,	Dec. 31, " 52 4 K.
	Jan 20, 1905, 53 4 K.

For some reason patient was not weighed early. The sinuses appeared to have been greatly benefited by injections.

January 26, 1905. General appearance good. Left breast slightly larger than right. No abscesses in many months. Sinuses have apparently healed completely.

April 15, 1905. Still well.

Case No. 36. Georgia Brown, C. F. Aged twenty-four. Received December 17, 1901. Weight 55.2. Entrance examination negative.

November 11, 1904. Diminished expansion. Diminished vesicular murmur. Occasional rale—moist and crepitant. Increased vocal fremitus over right apex, both in front and behind. Cough; fever; sputa.

Inoculations.	Weights.
Jan. 1, 1905, 1 5 c.c., 72 hours, R.	Nov. 25, 1904, 68 4 K.
	Jan. 20, 1905, 70.6 K.
	March 18, " 76 6 K.

January 26, 1905. Physical signs improved to considerable extent. Right lung: suppression of vesicular murmur and slight broncho-vesicular breathing over right

apex. No rales. Few fine friction sounds over lower left lobe anteriorly. No known cough; no fever; weight 76.6 kilos.

April 15, 1905. Condition remains good.

It will be noted in several instances there was a steady gain in weight and a general improvement in condition as long as injections of B. X. were continued, and a subsequent relapse when treatment ceased.

In the series of 73 cases here reported, 9 are considered clinically cured, 21 are benefited. The remainder are either not materially better, are worse, or have died.

I wish hereby to thank the various gentlemen who have sent me cases for this experimental treatment.

My thanks are part especially due Dr. T. O. Powell, superintendent State Sanitarium, for giving me the privilege of inoculating patients in that institution, and to Drs. R. V. Lamar and N. P. Walker, in whose service the work was done, for their intelligent cooperation and aid.

DISCUSSION ON DR. T. E. OERTEL'S PAPER.

Dr. Claude A. Smith: I have been greatly interested in this excellent report by Dr. Oertel. This represents an enormous amount of work, and I would like to ask the doctor in closing to state what deductions he has made in his own mind as to the possibility of anything coming out of this treatment in the future. Having tried it, he is the only one competent to speak on this.

Dr. M. M. Saliba: I have listened to this paper with a great deal of interest. Personally I have never had any faith in tuberculin, but I have great faith in the diphtheria antitoxine. Diphtheria being a self-limited disease, we can have an antitoxin, but in tuberculosis it is not a self-limited disease and, therefore, we can not have a serum. In diphtheria the bacillus passes through a certain course

and then stops, but this is not so with the tubercle bacillus. The consumptive might have contracted the disease as a child, and then the disease not appear for twenty or thirty years. This was brought out prominently in a discussion before the Pathological Society of London a few years ago. Moreover the risk from tuberculin is bad, as it is liable to spread the disease.

Dr. T. E. Oertel (in closing): I purposely avoided drawing any conclusions, as it is a new field and there is little written to draw conclusions from. The scientific mind does not rush to conclusions. I must say, however, that in my mind these cases bear out Dr. Maher's assertion. When you take a series of 73 cases, all authentic cases, and use any sort of treatment, and have nine clinical cures in the space of eight months' time, I venture to say that it deserves our very serious consideration. I am satisfied that it is of value. It is not a specific, and how it acts I have not the slightest idea. These were not treated in any other way, and many did not have hygienic conditions, and there is the result. The effect on night sweats seemed to be marked. If there is going to be any benefit they usually cease and do not return. In view of these facts I simply assert that it deserves very serious consideration, and when we get a specific for tuberculosis it will be along this line.

THE TRUE VALUE OF DRUGS IN THE TREATMENT OF CONSUMPTION.

By M. M. SALIBA, M.D., Savannah.

Tuberculosis is one of the most curable of all diseases. The tendency to recover is so great that, even without medical aid and in spite of disregard of all laws of nature, more cases recover than end fatally.

Among the very poor in large cities nearly every one gets tuberculosis. About one-third of all who get the disease die of it. The others, when they die, show evidence of having had it and of having recovered.

This has been demonstrated on the autopsy table in charity hospitals.

Tuberculosis is never cured by the physician, but by the patient himself; that is to say, by the natural powers of recovery. These, however, may be stimulated, assisted and directed by wise medical guidance.

In the treatment of persons affected with pulmonary tuberculosis drugs play a useful, but a secondary, part. The principal means of treatment for the relief or recovery of these patients are included under the general term of hygienic measures, which bring about a physiologic reinforcement of the patient's recuperative energy, and this conquers the disease.

In presenting this paper I will speak of the use of drugs, of what may be accomplished with their aid, and of what it is useless to expect from them. To answer these questions it is necessary to have a clear idea of the pathologic

conditions and processes embraced under the head of phthisis. This is not the place to enter into detail, but certain outlines may be noted.

Consumption is a communicable disease, due to the entrance into the tissues of a specific and definitely isolated bacilli, and the colonization of these micro-organisms in the tissues of an individual which, from inherited or acquired susceptibility, afford a suitable culture medium for their development. Depending upon the virulence of the infecting organisms, the location of colonization from a histological standpoint, and the inherent resisting power or immunity of the individual, or its reverse, susceptibility, we may have the disease establishing and pursuing one of the clinical forms which are so familiar to us all, the essential pathology of which consists in the progressive destructive metamorphosis of normal tissue by the process of tubercle formation, and the resulting sequelae of general disturbances of function which are so profound in their results, and which depend primarily upon the local lesions.

The impairment of nutrition which we encounter in this disease, and which it will tax all our resources to arrest or check, must be regarded not as the cause, as was formerly taught, but as the consequence mainly of the infective fever which attends the development or the activities of the infective organism in the lungs, as well as in other organs.

The materia medica does not offer us any one drug, or class of drugs, having a "specific" action on this disease; yet from this source can be drawn drugs which will aid us much in general and symptomatic treatment, such, for instance, as will increase appetite, aid digestion, control cough and increase the blood in strength and richness.

If we were to discover, at this present time, a perfectly

certain remedy for consumption it ought scarcely to be necessary to say that it would only remedy the "remediable" cases, and it would only cure the "curable" ones.

If there exists a means of curing this disease there will be laws which determine and control the cure, just as there are laws which determine and control the course of the disease. It is only in this sense that there exists a cure for any disease.

If we were to cure consumption we must, whatever our remedy may be, treat it in its earliest stage, before it has led to any considerable destruction of lung tissue; but we may arrest the course of the disease, and so remedy cases, even when the disease is somewhat advanced.

There is yet another condition, other than the amount or stage of the local disease, which will determine the results of treatment and the classification of the case in regard to it; and that is the power of resistance in the organism to the infecting agent.

The essential means of treatment of pulmonary consumption are the following:

1st. To reduce the virulence of the bacilli.

2d. To increase the resistance of the body.

3d. To deal with the various symptoms as they present themselves.

To the first group belongs the treatment of tubercle by tuberculin, the serum of immune or immunized animals, and all the antiseptic methods, whether by internal administration through the mouth, subcutaneous injection, or locally by means of inhalation, and sprays, or by intra-tracheal or intra-pulmonary injection.

Under the second head comes all the methods of general and special hygiene and general tonics by which the body is kept in, or restored to, good health.

The third, the treatment of symptoms, though often

disparaged as empiric, is not only a necessary part of treatment, as relieving the patient's distress, but is truly scientific, if it be remembered that the symptoms are mainly due to the absorption of the toxins of the tubercle bacilli and other organisms, and that the real object of symptomatic treatment is to find the antidotes to these toxic substances by which their evil effects upon the body may be counteracted.

If there is any disease whatever in which it is a mistake to look for results quickly or to be in a hurry to make changes in the administration of drugs, it is the one under consideration; chronic cases require chronic, that is to say, persistent treatment, and the organism must often be accustomed gradually to the remedy.

By the antiseptic treatment of phthisis is usually understood the treatment by remedies which, from the effects they produce in checking the growth of bacilli outside the body, are thought likely to have a similar effect when introduced within the body. The remedies are numerous, and of a very miscellaneous character, and the methods of introducing them various.

Almost every antiseptic known has been tried in one way or another, and most of them have been quickly abandoned as inert or harmful. It would be waste of space and time to refer to any but those few which have either been most largely employed or found most useful.

No other antiseptics have met with such general acceptance and approval and have stood the test of time as the creosote group and the iodin group. The creosote group is applicable when destructive changes belonging to the bacillary phenomena have begun, and also when the pyemia and increased destruction of the tertiary processess are manifest. The iodin group is applicable especially in the early stages of pulmonary infiltration.

The inhalation of iodin vapor is quite an old expedient in the treatment of consumption, and it is thought by many that much of the value of applications of iodin to the surface of the chest is due to the inhalation of the vapors given off. S. Solis Cohen considers the inhalation of ethyl iodide one of the best means of conveying iodin into the air-passages, and considers it of special benefit in ulcerative laryngitis and in assisting the disinfection and healing of pulmonary cavities.

The most useful of the iodine group is iodoform, which has been largely given internally as well as by inhalation.

I have given the drug in doses varying from ½ to 5 or 6 grains five times daily, beginning with ½-gr. t. i. d. after meals; and I think thirty grains daily is the limit beyond which it may not be safe to go.

I have found iodoform of great service in many cases, but given in pills I have found it very badly tolerated by some patients, on account of the gastric irritation it has excited. Children take it exceedingly well mixed with codliver oil in the proportion of ½ a grain to two drams of the oil, and adults take it for long periods without any difficulty when given mixed with guaiacol and almond oil in capsules, which should be taken immediately after food, or if at other times, with a tumblerful of milk. Balsam of Peru is an excellent excipient, and the addition of a digestive ferment sometimes enables iodoform to be borne by stomachs otherwise intolerant.

Ichthyol, which has been recommended as of use in pulmonary tuberculosis, in doses of 5 grains or more, thrice daily, sometimes is used as the excipient, with or without balsam of Peru.

Dr. Flick, of Philadelphia, states that he has seen much benefit from the inunction of iodoform in codliver oil or lanolin. Dr. S. Solis Cohen states that attar of rose in

very minute proportion will successfully mask the odor of iodoform when used in this way.

Iodoform dissolved in sterilized olive oil, in the proportion of 1 to 10, may be given by intra-tracheal injection in quantities not exceeding ½ dram.

Iodoform may be given by inhalation in the proportion of 20 grains to the ounce. In laryngeal phthisis it is very useful, especially when applied locally to the ulcers in the form of powder by insufflation, or dissolved in ether—1 to 10—and applied by sponge. Its good effect is due to systemic absorption as well as to the local action.

Other iodin preparations are metallic iodin encapsulated with some fatty or mucilaginous vehicle or emulsionized with cod-liver oil, compound tincture of iodin, arsenic iodide, iron iodide, and Lugol's solution.

The creosote group—carbolic acid, creosote, guaiacol, and combinations of creosote and guaiacol—is extensively used by the profession.

Carbolic acid is but little used now. It is best administered in the form of a pill, or it might be given as the sulpho-carbolate of soda, gr. x to xv, in an ounce of water. It may sometimes be usefully employed locally, in proper dilution, and may be given hypodermically in sterilized olive oil in strength of from 1 to 10 per cent. and in doses of from 1 to 10 grains. My own experience with carbolic acid is slight. I have used it only for inhalation.

Creosote has been employed in the treatment of phthisis for many years, and may be regarded as a direct descendant of the old tar treatment so much in vogue in the last century. Of late years it has steadily gained in favor, and is now, perhaps, more widely used in every country in the world than any other remedy for phthisis.

Beechwood creosote is a sufficiently good preparation, provided a pure article can be obtained. The impurities

which the commercial creosote contains irritate the stomach and the kidneys. The urine, therefore, must be carefully watched when creosote is used, as well as when carbolic acid is used. Creosote is given in gradually increasing doses. To begin with, ½ a minim three times a day is taken, then one minim, and so on until doses of 10 or 15 minims or even more are reached. It is my custom to increase the dose cautiously up to the point of tolerance, maintaining at that point or decreasing, according to the results in the individual case. Creosote has a disagreeable taste and is most readily taken in capsules, but it should not be given in capsule unless associated with at least 5 minims of an oily vehicle to each minim of creosote. I frequently give it in hot milk two hours after meals, though it may be given without vehicle if taken at meal time. Two hours after each meal is a very good time for its administration, as thereby the patient is induced to drink a glass of milk at that time. It may be shaken up with cod-liver oil and taken immediately after meals, or it may be made a part of a compound emulsion of cod-liver oil. When creosote can not be taken by the stomach in sufficiently large doses it may be given emulsionized with cod-liver oil or milk by the rectum, and some have given it in sterilized olive oil hypodermically into the buttocks or thighs. Striking results are often produced in this way, but the pain and discomfort caused by the repeated injections were great drawbacks.

There are several kinds of creosote; that derived from beechwood was especially advocated by Bouchard. It has the peculiarity that it contains guaiacol, which some other creosotes, for example that obtained from pine wood, are quite without.

The best evidence of creosote's good effect is the improvement in the appetite which frequently follows its

administration. Cough and expectoration are often favorably influenced. It has no specific action, however, on the tuberculous lesions.

Guaiacol, which is one of the principal constituents of creosote, is less disagreeable in taste than the latter, while the carbonate of guaiacol is quite tasteless. Both are, however, much more expensive than creosote. Guaiacol may be given in the same doses as creosote and the carbonate, in doses of from 5 to 15 grains.

Guaiacol may be given dissolved in spirits of wine and diluted with water, or in cod-liver oil.

Among other derivatives of creosote may be mentioned creosote carbonate or creosotal, a viscous liquid; benzoate of guaiacol or benzosol and guaiacetin, both tasteless crystalline powders; eosote or valerianate of creosote, and geosote or valerianate of guaiacol, and piperidine guaiacolate. These may all be given in capsules or cachets in doses of 5 to 30 grains or minims, under the same conditions as creosote itself. Although these drugs have been largely used they have not any distinct advantages over creosote, except that of palatability.

I am convinced of the efficacy of creosote and its derivative, guaiacol, in arresting the progress of phthisis in many cases, and its efficacy is not limited to early cases, but it is also of great use in many chronic forms. It does not cure incurable cases, as some would seem to expect, but if properly, adequately and carefully administered, it does as much in the way of remedying them as seems possible. It is known that the tubercle bacillus can with difficulty be cultivated in sterilized blood serum containing 1-4000 its volume of creosote; and it seems possible that even in moderate doses it may render the lung tissues a less favorable culture medium for this microbe.

A great number of other antiseptic agents—volatile and non-volatile—have been applied to the treatment of

phthisis, and more or less success has been claimed for all of them. Some have had a brief popularity and have then practically disappeared from use.

The balsamics and terebinthinates are found to be useful in controlling morbid conditions, especially catarrhal processes in the lungs and the bronchi, in relieving cough, and in correcting the character of the expectorated matters. Of these I would call special attention to myrtol, which I have found to influence favorably the course of consumption, especially when there is evidence of putrefactive processes in the air passages. It may be given in doses of from 5 to 10 minims, dropped on sugar, encapsulated, or emulsionized, just as one would give turpentine, terebene, eucalyptol, or other agents of this group.

The question of stimulants is always an important one, for it is sure to be raised. Alcohol in any form has no curative or remedial action on the disease. This at once disposes of the treatment of phthisis by alcohol, and it may be unhesitatingly affirmed that the systematic and deliberate administration of alcohol, to the extent of many ounces a day, is absolutely pernicious. It is not rare to find patients, when seen for the first time, evidently suffering from the effects of alcohol; for the furred tongue, loss of appetite, general tremulousness, with disturbed rest and evil dreams at night, indicate the cause and all the symptoms disappear when the alcohol is stopped.

At the same time most consumptives are, I believe, the better for some stimulant with their meals, for it seems to improve appetite and to assist digestion. If alcohol does not suit it will show itself, either in impairment of the appetite or digestion, in coating of the tongue, or in uncomfortable fullness or flushing of the face after meals. With these symptoms the special stimulant must be changed or none at all given.

It is exceedingly necessary that the beverage, whether wine, spirits or beer, should be pure and of the best quality.

The diet is often supplemented by cod-liver oil, or, when this is not well borne, by cream or good butter, extract of malt, pancreatic emulsion, glycerine, etc.

Cod-liver oil is a valuable remedy for phthisis under certain conditions. It is especially useful in the treatment of the poor and ill fed; it supplies the place of food in such cases. It is not, however, so much the practice now, as it once was, to order all phthisical patients to take this oil as an essential and indispensable part of their treatment, as it is certainly possible to find other means for maintaining and augmenting the nutrition of the body. Most physicians also give it in smaller doses than they used to—two teaspoonfuls twice a day is now an average dose.

Cod-liver oil is ill borne, and therefore of little use in cases of febrile phthisis. The absence of the fever and the quiescence of the local affection favor its digestion and absorption. On the other hand, gastric debility or the existence of gastric or intestinal catarrh, so common in the more active forms of phthisis, and sometimes associated with the chronic form, counterindicates the use of the oil, or calls for its suspension. Where it agrees well its good effects are soon manifested in increase of appetite and increase in body weight.

The oil should be given about an hour after a meal; if it can not be tolerated then it may be given on going to bed, so that the patient will be in a recumbent position for some time after taking it.

The difficulty which some patients experience in taking the oil has led to many practical suggestions as to the best mode of giving it, so as to overcome the repugnance felt to it.

A great number of emulsions of cod-liver oil are now prepared, and many of them are well made and more easily digested by some patients than the pure oil.

If cod-liver oil can not be digested it is then best to abandon it and employ some other, e. g., cream, extract of malt or pancreatic emulsion. All these are useful, but their efficacy falls far short of that of cod-liver oil.

Glycerine has been regarded by some physicians, and especially by Jaccoud, as a good substitute for cod-liver oil when the latter can not be taken.

I have found glycerine to be of great value in the treatment of consumption and that it acts as an important aid to nutrition, promoting assimilation and lessening waste, and so causing a gain in body weight during its use. I give from 10 to 15 drams a day, a larger dose occasionally causes an elevation of temperature. As glycerine is an alcohol and, like other alcohols, capable, when taken in excess, of producing intoxication, it is necessary to regulate carefully the dose. I am accustomed to add a little brandy and a few drops of essence of peppermint, simply to give it an agreeable taste.

The alkaline hypophosphites are of considerable value in certain number of cases of phthisis. In advanced cases, with both lungs involved, they can only act as general tonic remedies, and this they will do in certain instances when there is no great amount of general cachexia. In acute febrile cases running a rapid course they are useless. They will often be found of great, though temporary, benefit to fair, florid young persons who are the subjects of chronic phthisis. They are of much less use to old than to young people; but to young children, in almost all forms of chronic lung diseases, they prove of the greatest service; and especially in the chronic bronchial catarrhs of scrofulous children.

They, however, may be given largely and continuously, certainly without harm and, according to many authors, with striking benefit.

They seem to be good general tonics in combination with other drugs, and are rather a food than medicine.

Of the drugs that have a more general action upon nutrition there are two especially which have been long in favor in phthisis, viz., arsenic and phosphorus; both, however, have the same disadvantage, that they are likely to upset the digestion.

Phosphorus may be given in pills, either alone or in combination with iron, quinine or nux vomica.

Arsenic may be given in the form of liquor arsenicalis in an acid or alkaline mixture, or in combination with iron.

I have found arsenic useful in some chronic forms, and especially in those which appear to have had their starting point in catarrhal and congestive attacks of one apex with pleuritic adhesions, often coinciding with rheumatic tendencies.

Iron is certainly useful when it can be taken, but it may disagree with the stomach and upset the bowels.

It matters little what preparation is given if it can be tolerated, but the milder, less astringent preparations are the safest.

Iron is not well borne in acute cases or when the tongue is coated and the digestion feeble. In such cases, before the iron be given, the digestion must be restored by means of an acid or alkaline mixture combined with strychnia, cinchona or gentian. The strychnia has the additional advantage that it will check the night sweats also.

Iron must not be given where a tendency to hemoptysis exists. In such patients the cardio-vascular system is often very excitable, and the administration of iron by

stimulating the cardiac irritability may be the means of inducing that hemorrhage which it is one of our main objects to avoid. But in some of the subjects of chronic phthisis, especially in poor, anemic and under-fed patients, the value of an iron tonic is remarkable, and it may be given with advantage for long periods at a time.

Having passed in review the various remedies that have been directed to the general conditions of the phthisical patient, regarded more or less apart from any particular symptom, I shall next consider the methods of dealing with individual symptoms, as they occur in the often very protracted course of this disease.

One of the most efficient means we possess for relieving the symptoms dependent on the pulmonary congestion and inflammation, which so constantly accompany the process of tuberculization, is counter-irritation. It is often attended by manifest relief of cough, diminution of fever and marked improvement in the physical signs.

Rubefacients, such as lin. camph. ammon. or lin. tereb. acet., are useful when there is bronchial catarrh. A fly blister, mustard leaf or iodine paint may be applied over the apices in the stage of infiltration. It is advisable to avoid using each day the same place; it is best to choose one spot one day, another the next, and so on, so as to be able to maintain this treatment.

Fever is one of the most important symptoms we are called upon to treat in the progress of a case of consumption, as it is certain to be present in some part, if not in the whole of its course. So long as the fever remains uncontrolled we know that the exhaustion of the patient's strength and the wasting of his substance must go on. All those remedies which have been mentioned under the head of general remedies, when they succeed in influencing favorably the progress of the disease, have the effect of lowering the febrile temperature.

The medicinal treatment of fever has not, so far, been very successful. Every known antipyretic has been tried more or less, but with very little apparent result on the temperature, and but little benefit to the patient. As a rule the case should be treated on general principles. The drugs chiefly employed as antipyretics are antipyrin, antifebrin, phenacetin and quinine, but of these the first and last have been most used. They must be used cautiously if necessary to give the patient comfort.

A temperature persisting at, or persistently recurring to, 100 F. or more, needs palliation, preferably by rest and the application of ice bag over the heart. A long sea voyage is the best possible treatment for patients exhibiting this tendency.

Sweating, though a very common symptom in phthisis, is very inconstant. It may come and go in the most irregular way. The patient should sleep in flannel, and if the clothes become very wet or damp they should be changed and the patient should be sponged with tepid water, food and stimulants being at the same time given.

There are several remedies which exert some control over night sweating. Among these are oxide of zinc, belladonna or atropine, nux vomica or strychnine, agaricin, picrotoxin, hyoscin hydrobromate and camphoric acid.

Sweating depends in a great part upon the general condition of the patient, and is therefore relieved by any drug or treatment which improves the general health. This is the explanation of the use of iron, quinine, acids, hypophosphites, feeding and stimulants.

In treating the cough of phthisis it is necessary to be discriminating. In the first place, we must constantly bear in mind the relation of cough to expectoration, and we must keep in view the fact that the cough of phthisis may be:

1. A cough of expectoration which is simply to rid the air passages of secretions which have accumulated in them, and which offer an impediment to respiration.

2. A cough of irritation, purely a dry cough, which is not accompanied or followed by expectoration.

3. A cough of both expectoration and irritation; and this last is the kind of cough we, in nine cases out of ten, have to deal with in consumption.

The cough in phthisis is essentially conservative, having for its object the removal from the air tubes of morbid products which would be harmful if allowed to remain. As a rule the cough is short, not very frequent or difficult, and relieves rather than distresses the patient, so that it may require little, if any, treatment. Certainly the routine administration of opiates or sedatives for cough in phthisis is quite as likely to do harm as to do good.

The morning cough is almost invariably a cough of expectoration and is due to the accumulation of secretion, either in cavities or in the air tubes during the hours of sleep, and usually varies inversely with sleep. If the night has been good the morning cough may be severe, and vice versa. The administration of a sedative at night to check the cough and give sleep may be followed in the morning by such a severe bout of coughing that the patients will prefer the broken night's rest they get without the sedative.

In many cases the morning cough is not due so much to the amount of secretion as to its viscidity and the difficulty of bringing it away. This is greatly relieved by giving warm alkaline drinks to which a little alcohol may be added. If the morning cough is treated in this way the paroxysms, as a rule, are soon over and a long period of comparative freedom from cough is commonly insured.

In association with warm alkaline drinks the inhalation

of some stimulating balsamic vapor—oleum pini sylvestris, sanitas oil, tincture of benzoin, etc—for a few minutes will promote and secure a prolonged period of immunity from cough.

There are many cases, especially of advanced phthisis, in which, after the discharge of much expectoration, an irritable condition of the mucous membrane of the air tubes remains and a cough of irritation follows.

We may have to deal with cough of irritation also in some cases of phthisis, especially in early stages, and when some dry pleurisy is found over an apex, or when early interlaryngeal changes have shown themselves.

In treating this form of cough we must be prepared for the necessity of frequently changing or modifying our remedies. Butyl chloral, chloral hydrate and bromide of potassium have been found to relieve this form of cough. These remedies find their appropriate use in the case of consumptive patients of neurotic or hysterical temperament. They should be given at bed time and about every third night—the chloral acts best when combined with potassium or sodium bromide.

Belladonna and opium, together or separately, and codeia have been found of great service in relieving the cough of phthisis.

In most cases of phthisis the cough is due to irritation in the large air tubes, and it is usually associated with profuse expectoration from chronic catarrh.

To diminish the amount of secretion in this kind of cough inhalations of creosote, tar, oleum pini sylvestris, terebene, chloroform, etc., may be given.

The prognosis in phthisis depends largely, other things being equal, upon the digestive system. Every effort must, therefore, be made to keep the digestion in good condition by avoiding everything that may upset it, and

most carefully treating any disturbance in it that may arise.

For this purpose the diet and general habits must be regulated. Excesses and dissipations of every kind, whether in eating, drinking, smoking, or late hours, must be avoided.

It is always important to improve the appetite and strengthen the digestive power. An alkali in a bitter infusion taken a short time before meals works wonders. Sometimes an acid mixture containing phosphoric acid, with a bitter infusion, suits better than an alkaline. Strychnine, arsenic, iron and the digestive ferments must be guided by the special symptoms and responses of the individual case.

If there is constipation it must be relieved, and if the tongue is furred an occasional dose of calomel will benefit.

The diarrhoea may be due to the irritation of undigested food, to catarrhal conditions of the intestines, or to ulceration.

Much may be done by the regulation of diet, so that the food should leave but little solid residue to reach the lower bowels. Among the drugs useful in different cases are arsenic, iron, mercury, copper, opium, tannic and gallic acids, bismuth, benzonaphthol, salol, guaiacol salts, etc. The bowels, however, should be thoroughly washed out before using either astringents or opium, by the administration of calomel in small doses, followed by a saline laxative.

The diarrhea attending advanced tubercular ulceration is notoriously difficult of arrest. Besides the means suggested above, pills containing nitrate of silver ¼ to ½ grain and opium ½ grain, given three times a day, I have found of great service, and in advanced cases I also have found the extract of coto bark very efficacious when other remedies have failed.

Hemoptysis is an alarming accident to the patient, the family and the inexperienced physician. It will subside spontaneously in nine cases out of ten if the patient be put at rest.

The general rules which apply to the treatment of all cases of hemorrhage are to keep the patient perfectly quiet in bed in the semirecumbent position, to forbid all conversations and all mental excitement, to keep the apartment cool and airy, to allow only cold light food in small quantities and cold iced drinks, and to let the patient suck fragments of ice. When necessary, the force of the heart's action can be reduced by aconite in appropriate doses, and cough be checked by opium, codein, morphine or heroin.

A hyperdermic injection of morphine will soothe the patient's nervous state, allay his fears, and produce that condition of repose which is so essential. An ice-bag may be applied to the front of the chest over the heart, or over the seat of bleeding, if that can be located without undue disturbance to the patient. A hot-water bottle to the feet is advisable, if they are at all chilly.

Atropine sulphate 1-120 grain given hyperdermically at the beginning of hemorrhage will often cut it short.

Various hemostatics have been used from time to time. Crystallized calcium chloride, ergot, sulphuric acid, acetate of lead, and oil of turpentine are the best of all.

Crystallized calcium chloride is to be given in dilute solution in doses of 15 grains every second hour, for not more than four days. It promotes coagulation of the blood and the formation of permanent clot at the seat of rupture.

If medication is still necessary ergot, ergotine or ergotinine may then be given. There is an overwhelming weight of testimony in favor of the efficiency of these

remedies in cases of serious and copious hemoptysis. To be useful, they must be given frequently and in full doses. It may be given by the stomach or hyperdermically.

It is in copious and continued hemorrhage that ergot and its preparations are chiefly of value. In the sudden profuse hemorrhage of advanced cavity cases due to aneurismal rupture, it is not so suitable a remedy.

The object of this paper, however, has not been to prefer drugs to the hygienic and nutritional measures, to go into details of treatment, or to advocate the use of any special agent in any special condition. I have wished simply to indicate for what purposes drugs may wisely be employed, and to suggest different groups of agents applicable for these purposes, from which choice is to be made according to the particular patient, time and place. Bearing in mind that drugs for the sake of doing something should be carefully avoided, that drugs may do harm as well as good, and that no drug should be used unless for a well-defined reason.

A MEDICAL AND SURGICAL HODGE-PODGE.

By W. B. HARDMAN, M.D., Commerce.

Perhaps most of my audience, from hearing the title of this paper, have formed a correct idea of its tenor and scope. It is, so to speak, a medical and surgical crumb-pudding—a little of several things.

Every one, no doubt, who has attempted to practice medicine has encountered difficulties in his years of experience which are matters of plain sailing to him when he becomes more mature in his profession. In his early years he may know of more methods, or even know more methods, of treating diseases than he does after years of experience, but he does not know as well when and how to apply them to get the best results. He does not then know so well how to make "the punishment fit the crime." As one grows in experience he does not necessarily grow in book knowledge, but he grows in the specific knowledge of when and how to use what he already knew, or thought he knew.

In this paper I shall tell you nothing new, but I will give you a few points that have been of value to me in my experience along certain lines. I am not writing for the specialist, but for the general practitioner, who more often runs up against difficult propositions.

1. *The Importance of Using an Anesthetic in Setting Fractures.*—I dare say that a great majority of physicians set any and all fractures (or set at them) which come under their care without an anesthetic. An anesthetic

should be used, unless contraindicated, especially if the fracture is near to, or involves important joints. The patient is relieved of much suffering, and the results obtained are much better. Professor Bodine, of New York, will not set a Colles fracture if the patient refuses an anesthetic. He says he always sends such patients to his worst enemy in the profession, for he is sure he could do him no more harm in a gentlemanly way than to have him set a few Colles fractures without the use of ether or chloroform.

2. *The Treatment of Colles Fractures.*—There are, doubtless, but few of us here to-day who do not number among his friends or enemies (more likely the latter) some one who occasionally exhibits for his especial benefit a beautiful silver-fork arm. I think we can all avoid this unpleasant advertisement in ninety-nine cases out of a hundred if an anesthetic be given and the fracture properly reduced. A crooked arm from a Colles fracture *nearly always means it has been improperly set.* In a great majority of the cases it means the bony impaction has not been broken up, and the ends of the bones put in proper apposition. It is hard to relieve this impaction without the use of ether. When the impaction is once broken up and the bones put in proper apposition it is very little trouble to keep them there. They will almost stay in apposition without any splint at all. The following method of treatment, which is not original with me, but which I have used in all my later cases, I consider ideal:

(1) Anesthetize your patient.

(2) Reduce the fracture by grasping the upper and lower fragments and using traction, at the same time forcibly extend the lower fragment, also using some gentle lateral motion, if necessary, to break up the impaction.

Then with free traction flex the lower fragment, at the same time with the upper hand and thumb on the dorsum of the wrist just above the fracture, use firm downward pressure, pushing the skin and tendons toward the fracture. The ends of the bone can thus be put in perfect apposition, and with the end of one thumb over the seat of the fracture may be held there, even though the arm be considerably shaken about.

(3) Use only a single padded hardwood dorsal splint that extends from the elbow to the middle joints of the fingers. Use only a thin layer of cotton under the arm. Start your bandage from the radial toward the ulna side of the arm, and when reaching the hand, bring the bandage under the end of the splint always, thus producing as much abduction as you wish. With a pad of gauze or cotton under the end of the splint and on the dorsum of the wrist, with the bandage brought around it, produce the proper flexion of the wrist.

I have an old splint here which I used on one case, and I can show you better by illustration than I have explained it in words.

With this method of treatment the patient suffers almost no subsequent pain. It is astonishing how comfortable they are, as compared with any other method I have ever tried.

At the end of a week or ten days this splint may be removed and, with the arm resting on a table, a pad under the wrist and the hand flexed, cut several layers of gauze the length of the wooden splint and a little wider than the hand of the patient; and with a few stitches unite these layers of gauze one upon the other. Dip this gauze in a milk of plaster of paris, and mould it to the back of the hand and arm. When it hardens remove it, cut off the ragged edges and tape the edges with rubber adhesive

plaster. You now have a perfect dorsal splint for subsequent treatment, which may be easily removed to massage the joint and arm when needed. This massage may be done by gentle manipulation and by alternate applications of hot and cold, with wet cloths. Often this last splint and procedure is entirely unnecessary.

If this method of treatment of Colles fractures be properly carried out, crooked arms and stiff wrist joints will be almost a thing of the past. It is, then, almost a pleasure for both physician and patient to have a Colles fracture.

3. *Antitoxin in Diphtheria.*—Most general practitioners hesitate or procrastinate about using antidiphtheritic serum. I have been along that road and I know how it is. You perhaps have never used it, and don't know just how to go about it. You think, perhaps, your case will do all right without it, and you can save your client the expense. If the case gets very bad, in a very critical condition, you will, of course, use antitoxin as a last resort; using it then with fear and trembling. Thus you have reasoned with yourself no doubt, and if you have had my experience you have thus reasoned to your sorrow.

Any one who can give a hypodermic injection of morphine can administer diphtheritic antitoxin. It is necessary, of course, to cleanse the parts at the point where the injection is to be made, but the procedure is simple. The danger to the patient from using it is practically nothing. There is no question now but what it is the remedy *par excellence* in diphtheria. Then why hesitate? To get the best results its administration must be prompt, and in sufficient dosage, twenty-five hundred or three thousand units of XX serum being none too large for the initial dose, except in very small children. Use reliable

serum. That made by Park, Davis Co. will not disappoint you.

Do not trifle with these cases, even if the diagnosis is not clearly diphtheritic. It is better to give a half-dozen doubtful cases a good dose of serum than to let one case get beyond your control by waiting. "When in doubt play trumps," is a good motto in medicine as well as in whist. Antitoxin does a dying child but little good.

4. *Peritonsillar Abscess, or Quinsy.*—For a long time the cases of quinsy which came under my care ruptured themselves, after the patient had experienced several days of extreme discomfort, and after I had incised the tonsil once or more hunting the pus. Most practitioners, no doubt, could relate similar experiences. You can not, or at least very seldom, find the pus in a quinsy by cutting into the tonsil. The pus is nearly always to be found in the supratonsillar fossa, or internal to it; and the incision should be made just above the tonsil or through the soft palate downwards and outwards. By placing your finger above the tonsil, or inward toward the soft palate, you may distinguish the tense, puffy feeling produced by pent-up pus. There may be more or less pouting at the point. There is very little danger of striking the large vessels if moderate care is exercised.

5. *The Treatment of Epitheliomas and Kindred Troubles, such as Rodent Ulcers, Skin Cancers, Epithelial Warts, Proliferations, Tumors, Bumps, etc., with Caustics.*—You are all familiar with the troubles I mention. They occur mostly about the face. Their tendency is to form distinct and destructive epitheliomas. For a long time the quack has been ahead of us in treating these troubles. He knew nothing but his caustic, and in many cases used it successfully when he used it early. I believe the tendency now among the dermatologists is to

treat these troubles themselves with destructive agents, and cure them rather than refer them to the surgeon. So far I have not been able to differentiate the cases to which these destructive agents are not applicable. So far they have been universally satisfactory to me. A favorite application with many is Marsden's paste, which is made of pulverized acacia, arsenous acid and water, mixed in various proportions. Equal parts of arsenous acid and acacia is perhaps about the best proportions. These may be made up with water and worked until they form a dry gum, as it were. This is plastered on to the diseased part and allowed to remain from twelve to twenty-four hours. This can be repeated after a time, if necessary, until there is a sloughing and separation of diseased and healthy tissue.

But what I prefer to Marsden's paste, and what I have used in quite a number of cases during the past four or five years with very satisfactory results, is butter of antimony—chloride of antimony. This can be applied with a glass rod. If the surface is dry, a little scraping will aid its action. After four to eight days there will be a sloughing, though not usually of all the diseased tissue. The slough may be lifted out and the application repeated, from time to time, until the growth is destroyed.

These two drugs seem to have an affinity and a selective action on pathological tissue. A peripheral inflammation is set up, and this seems to destroy adjacent partially diseased cells.

A healthy reaction takes place, and the results are good.

I have used butter of antimony on several cases where the patient was seventy years of age or more, and have had only the best results. I do not find that healing is slow after its use, as some have claimed. It is a good application to indolent ulcers of the leg; but, especially

to the class of troubles about the face above mentioned, it is to me now almost indispensable.

The only serious drawback to its application is that it is at times very painful. But this can be alleviated by first making applications of a strong solution of cocaine.

6. *Chronic Interstitial Nephritis, or Nephritis with the Production of New Connective Tissue.*—I know of no disease that is more commonly unrecognized than chronic interstitial nephritis. It is a very common thing for a physician to tell his patients that their kidneys are not acting well, when he really means but little by it. It is simply a good thing to say, when one does not care to go into details or does not know what else better to say. The symptoms produced by an interstitial nephritis are very often treated by physicians without ever recognizing the true situation. I know that I have treated several cases for some little time before I waked up to the real cause of the trouble.

We want to remember that chronic interstitial nephritis is by no means an uncommon disease. While it is to be looked for in the gouty, the rheumatic, the alcoholic and the syphilitic, it is not at all confined to this class of individuals. It is liable to turn up where least expected. It is very slow and insidious in its approach, and hence the liability to think the patient is run down, overworked, or suffering from general debility or nervous prostration (two couplets of big words, which cover a multitude of sins and mean but little), and nothing more. There may be decided stomach symptoms, nausea, loss of appetite, etc., and the patient is treated for indigestion or catarrh of the stomach. There may be frequent muscular pains, or neuralgias, and he is treated for muscular rheumatism or neuralgia. There may be vertigo, disturbed vision, bad taste in the mouth, offensive breath, and the patient is treated for disordered liver. In all these patients

inquiry may have been made regarding the kidneys, and the reply has been that they act well enough or freely.

The urine has been casually examined, and there is no albumin. The kidneys are then eliminated in our minds as being the seat of the trouble. The specific gravity may be low, but that alone has not attracted our attention. We are, all of us, I think, too much given to the opinion that a urine free from albumin indicates a normal urine, as far as Bright's is concerned. We conclude, as there is no albumin, there is no nephritis. Resort is not had to the microscope. The true condition is not recognized. It is very important that an early diagnosis be made in these cases, in order that the patient may be given proper treatment and advice. *We certainly ought not to wait until there is marked anemia, attacks of dispnea,* swelling of the feet or general uremic symptoms, before we are aware of what we are dealing with. Swelling of the feet in chronic interstitial nephritis is usually only slight, and does not appear usually until late in the disease or frequently not at all. I mention these things in a general way in order to impress upon our minds the following facts:

(1) Any of the above symptoms mentioned, especially in those past middle-age, calls for a careful examination of the urine.

(2) The urine should be carefully examined with the microscope, which may reveal small hyaline or pale granular casts when there is no trace of albumin.

(3) A persistent low specific gravity alone is almost sufficient grounds for a diagnosis.

(4) In addition, there is increased arterial tension.

(5) A hypertrophy of the left ventricle.

(6) An accentuation or reduplication of the second aortic sound. Murmurs are not by any means a constant symptom.

THE TREATMENT OF PNEUMONIA.

By J. E. SOMMERFIELD, M.D., Atlanta.

Appreciating the limited time of this society, I confine the substance of this paper to a mere abstract, relative to the general treatment of pneumonia, without consideration of any of its complications.

Although the subject has been discussed frequently before the Society, it may not be amiss to invite discussion again, both on account of the prevalence of the disease and the high mortality it presents.

In considering the prognosis, we must be guided by a number of conditions.

1. The intensity of the attack: It may be so mild that, in spite of lack of attention and medical aid, the patient makes a good recovery, or it may be so severe that the most careful treatment is of no avail, or, again, a case mild in the beginning may terminate fatally.

2. The age of the patient: With advancing age there is an increase in mortality, reaching almost 50 per cent. at the age of 50; said mortality increasing with further advancement in age.

3. The season of the year: During the autumn and winter months the mortality is higher.

4. The habits of the patient: The prognosis of the patients of temperate habits is vastly better than is that of habitual users of alcohol.

5. The physical condition of the patient, prior to the attack: In those suffering with affections of different

organs, especially heart and kidney, the prognosis is usually a grave one.

Before taking up the treatment it will be well to consider the sick-room. As most of our cases occur during the cold months, we usually find the doors and windows of the sick-room tightly shut, the room overheated and the patient covered with an excess of bed-clothing. Owing to the prejudices of the people and the fear that, if the window be opened, the patient will catch cold, there is difficulty in getting sufficient ventilation. Such fear and danger are readily overcome by raising the lower window and placing between it and the sill a board in length the width of the window and in width three to four inches. This permits of fresh air entering the room from between the upper and lower windows without creating a draft. With a little persuasion, lighter bed covering can be substituted. A temperature of between 65 and 70 degrees should be maintained in the sick-room.

Another difficulty I have encountered has been in the application of water to the body of the patient. Several times the information has been vouchsafed that I might as well sign the death certificate as make such application. Not long ago, when called to see a patient with a temperature of 105.5 F. and I requested the nurse to give him a bath, the entire family protested, as they had never heard of such a thing, but it was done and the patient made a nice recovery.

Diet: The patient should be restricted to an exclusive fluid diet. I find that milk, buttermilk, the various broths, fruit juices, egg albumen and the peptonized fluid foods on the market will usually satisfy the wants of the patients. An abundance of pure water is also beneficial, as it aids in eliminating the toxic poisons and assists in flushing the kidneys.

Specific Treatment: As in the study of other infectious diseases, much time and thought has been given to finding a specific for this disease and an antipneumococcus serum has been used by some authorities and encouraging reports have been made, but up to the present time its action has not been as decided as is antitoxin in diphtheria. Let us hope that the time is not far distant when a serum which is a specific for this disease will have been found.

Recently Galbraith has published a paper in which he reports having treated fifty cases of pneumonia without a death or complication. The method of treatment is as follows: When the patient is first seen an initial dose of 50 grains of quinine is given, followed in an hour by 30 grains. This second dose is repeated in two or three hours. At the same time tr. chloride of iron is given in 15-20 drop doses every three hours. In none of the cases was cinchonism observed. Within a few hours improvement could be noticed, and gradually the temperature fell, so that in five to seven days the patients were practically well. In no case did the temperature fall by crisis. He states that malaria is not found in the mountainous district in which he practices, and that no bad effects were observed from the use of large doses of quinine. During the stage of resolution, however, small doses of quinine will produce cinchonism.

S. Solis Cohen, in commenting on this paper, states that a patient of his who had all the physical and other signs of pneumonia was given a 10-grain dose of quinine, and this to be repeated in six hours. By mistake 10 grains were given every hour for six or eight hours. At the next visit on the following day he found that the physical signs had disappeared and that the patient was practically well. He had been afraid to try such large doses of quinine in subsequent cases, but after reading Galbraith's

paper he suggests that tests in the pathological laboratory be made regarding the antitoxic powers of quinine.

At the onset of the disease a thorough evacuation of the bowels is beneficial, and for this purpose I give calomel the preference. The intense pain in the side and the hacking cough will frequently require the use of morphine; in the milder cases heroin will suffice. In children, the application of the poultice (the preparation on the market which only requires one or two changes in twenty-four hours) will usually make the patient comfortable. After a few hours use I have frequently seen a tired, restless child fall into a perfectly peaceful slumber. In adults, usually the same results can be accomplished by means of cold compresses or of ice-bags applied to the chest. Expectorants are rarely indicated. Hyperpyrexia can usually be gotten under control by means of the ice cap to the head and sponging or bathing of the body. Occasionally an antipyretic is needed. For this purpose lactophenin gives good results. Blisters are applied by some in the early stages of the disease, but personally I make no use of the same. Veratrum viride is also used, being regarded as a specific, but also this I have never made use of.

Delirium and insomnia are frequently encountered, and the cause of same must be discovered. We will often find the habitual user of alcohol a sufferer from delirium and sleeplessness. The hyperpyrexia will account for it in others. The bromides act very nicely, and under their use the delirium subsides considerably. For sleep, the newer hypnotics have done me good service; 10 to 15 grains of trional, or veronal, given per rectum in suppositories act promptly.

To sustain the strength of the patient during the attack is our main object, and close attention must be given

to the heart. For habitual users of alcohol I prescribe it from the beginning, either as a toddy or in milk punches, though wine is preferred by some patients. With others I do not begin with its use at once, but note the symptoms and with the first sign of exhaustion prescribe it. Strychnine is one of our best heart stimulants, and I frequently begin its use early to sustain and aid the heart.

Digitalis and digitalin, combined with strychnine, is often of great service. Of late I have been making use of the adrenalin and suprarenalin preparations, and they usually stimulate and act promptly.

In conclusion, let me say that I have used the inhalation of oxygen in cases where cyanosis was marked with good results.

LOBAR PNEUMONIA IN CHILDREN.

By MARION McH. HULL, M.D., Atlanta.

The fact that pneumonia is the most common disease of childhood, according to an eminent authority, is sufficient excuse for our consideration of it, and if we needed other, the well-known fact, appalling as it is, that the disease is more prevalent to-day, if not more fatal, than a generation ago, would fully justify us in turning our thoughts to it again. We have chosen to deal especially with the fibrinous form in childhood, (a) because of the frequency with which it occurs, and (b) because of the peculiarities it presents.

When we think of pneumonia in a child we are apt to think of the catarrhal form, but while broncho-pneumonia is more prevalent under eighteen months of age, lobar pneumonia is far more so after that age, and is by no means unknown in the first few months of life. In a recent article in a foreign journal, one writer records sixteen cases following measles, of which thirteen were of the lobar variety, and of the thirteen ten were under three years of age. He cites it as his experience that this proportion holds good in cases with causes other than measles. While this is undoubtedly too high for the relative proportion between the two varieties mentioned, it at least serves to impress us with the greater frequency of the lobar variety in childhood than is ordinarily supposed. Jacobi probably has the proportion nearer right when he says that of all pneumonias in childhood about two-thirds

are lobular, one-third are lobar, while a few are interstitial. Lobar pneumonia is so prevalent in early years that one authority states it as his experience that sixty per cent. of all lobar pneumonias occur in childhood. The writer's experience coincides with this, but possibly for obvious reasons.

The disease presents in general the same symptoms and signs and runs the same general course as in adults, but in children it is less likely to be ushered in by a chill, and is more apt to terminate by lysis. It is more liable to be followed by delayed resolution, abscess of the lung, or empyema; otitis is a more frequent complication, and the disease is much less fatal.

As in adults, the disease is caused by the bacillus lanceolatus of Fraenkel, or rather by the toxins of this germ, although in many cases other organisms, such as the streptococcus, staphylococcus, bacillus of Eberth, bacillus coli communi and Klebs-Lœffler bacillus are also found. It is more likely to follow the other infectious diseases in children than in adults. Probably because of the greater liability of children to these diseases, and also because of the lesser resistance of the child. Carnall has reported a case following septic tonsillitis. Cold and exposure predispose to an attack, but lobar pneumonia most frequently attacks those who have been previously strong and robust. It is contagious and the child affected with it should be isolated.

An attack may be ushered in by a chill as in the adult, but vomiting with diarrhea, or a convulsion, is more probable, on account of the greater irritability of the child's digestive apparatus, and the lesser resistance of its central nervous system to afferent impulses. We have seen cases in which it was almost impossible to make a correct diagnosis for two or three days, as there were no

definite physical signs until then. In a recent case of the writer's the attack was ushered in by a slight chill, followed by rapidly rising temperature; nausea, vomiting and diarrhea then commenced and continued for thirty-six hours in spite of all treatment. On the third day the cough began, and there were signs of consolidation of the lower lobe of the left lung, the disease running a typical course, and the crisis occurring on the seventh day. This delay in the appearance of cough and physical signs is more or less characteristic of the childhood type. Auscultation and percussion are notably untrustworthy in children, with their puerile breathing and thin chest-walls, which may account in some measure for the difficulty in detecting early signs. Frequently the only change noted for the first twenty-four to thirty-six hours is a diminished vesicular murmur on the affected side, although, of course, in many others crepitant râles may be heard earlier. An early symptom that sometimes causes confusion is intense abdominal pain located frequently in the region of the appendix. This can occur without any inflammation in the appendix. Udolfo (Clin. Mod.) accounts for it thus, that from the branches of the intercostal nerves the pain is carried to the abdominal nerves, or the twelfth spinal, thence through the sensory branches to the subcutaneous tissues of the right lower quadrant of the abdomen. We must also take into account the anastomosis between the abdominal branches of the phrenic and the abdominal sympathetic.

The disease usually runs a typical course for from five to eight days, and terminates by crisis. In children, however, the number of cases that terminate by lysis is very much greater than in adults. The younger the child the greater the probability of the termination being by lysis. In these little patients, also, the tendency to delayed reso-

lution is very great. In two of the writer's cases recently resolution was delayed until the ninth and tenth weeks respectively. The temperature reaching normal on the twenty-eighth and thirty-fifth days respectively, but rising slightly in the afternoon for a longer period, finally terminating in recovery. When resolution is delayed there is always danger of the formation of abscess, or gangrene, or of the beginning of a tubercular infection. Empyema is not uncommon if the pleura has been very much involved.

Otitis is a very frequent complication of pneumonia in children. The wide funnel-shaped aperture of the eustachian tube, its more or less horizontal direction, and its relatively short length in children, offer very easy access to the organisms of pneumonia and other infectious diseases. It may occur in as many as fifty per cent. of the cases. Jacobi has pointed out the fact that otitis may exist without pain on account of the anatomical peculiarities just mentioned, the only evidence of it being a rise in temperature until a discharge of pus from the ear tells the story.

Recent studies of the blood in lobar pneumonias of childhood have developed some interesting facts which will be efficient aids in giving a prognosis, when sufficient experience has been accumulated. There is always some degree of leucocytosis, and this increases until the crisis. A lack of leucocytosis at that time is a serious omen. McCaskey has shown that a leucocytosis above 10,000 to 12,000 is an evidence of decided intoxication. If the neutrophiles are in excess it is an evidence of suppuration; if the eosinophiles are in excess, it is an evidence of an infection from cutaneous or intestinal parasites.

The prognosis in lobar pneumonia of children is as good as that of broncho-pneumonia is bad. The mor-

tality is about five per cent. in hospital practice, and less in private practice. It is greater under three years of age, but one may have a long series in children above that age without a death. This feature of the disease is in marked contrast to that in the adult, where the mortality is from eighteen to twenty-five per cent.

The treatment of the disease in children differs but little from that in adults. We have seen a few cases that were apparently aborted by quick counter-irritation and stimulation of the emunctories, but whether these would have developed further without this treatment we are unable to assert positively. Ordinarily, we do not believe the disease can be shortened. We have an intoxication from a toxine formed by the pneumococcus. Researches have demonstrated that the elimination of the toxine by the emunctories decreases until the crisis is reached, when it is markedly and suddenly increased. So far nothing has been found that will prevent the further formation of the toxine, after it is in sufficient quantity to produce the symptoms of the disease, or that will hasten its elimination. The rational treatment of the disease would therefore seem to resolve itself into the following:

(a) Prophylactic, to prevent infection, and if infection has already taken place to limit it and the formation of more toxine, by destroying as many of the infecting agents as possible. Creosote internally, and by inhalation in vapor of steam, does the latter in some few instances, if used early and aided by counter-irritation, catharsis, diuresis and diaphoresis.

(b) Supportive. When the disease has developed, that is, after the uxudate has taken place, or, pathologically speaking, during the stage of red hepatization, there is not any hope of aborting it. It is a question then of the patient's powers of resistance, of sustaining the child

until the crisis is past and convalescence is established. To aid the patient in the fight, rest of mind and body, an abundance of fresh air and water, good nursing, proper food, and stimulation, with care to the emunctories are the requisites in every case.

(c) Symptomatic. In carrying out the general line above indicated, symptoms must be treated as they arise. The pain of the first few days is best relieved by hot or cold applications. A mustard and flaxseed-meal poultice kept on until the skin is reddened thoroughly, followed by hot cloths or hot-water bag, often gives great relief. In others the ice-bag or coil does better, while in some, where the cough is also very distressing and aggravates the pain, we have to resort to small doses of codeine.

An occasional dose of calomel will stimulate the secretions and often relieve a distressing tympany. Vomiting is best treated by rest, and diarrhea by diet. The chief danger to guard against is heart-failure, so called. French observers have shown the toxin of pneumonia to contain products that depress the arterial circulation. These ectosins, as they call them, produce vasomotor paralysis, and this gives the characteristic pulse of advanced pneumonia. When the heart-muscle is affected, the rhythm of the pulse is disturbed and there is marked dyspnea, but the rapid thready pulse that we ordinarily meet with is due to dilatation of the arterioles. This paralysis indirectly produces the distention of the right heart more than the obstruction to the circulation by the consolidation of the lung does, since the latter obtains just as much, immediately after the crisis, and yet the pulse is markedly improved. Those drugs that will counteract vasomotor paralysis and that will stimulate the right heart are the drugs that should be employed. Ergot, adrenalin and strychnine have been used for this

purpose. Our preference is for the latter. Nitro-glycerine is to be preferred to digitalis in emergencies where the right heart is over-distended, because of its more rapid action, and because digatalis acts more on the left heart, while nitro-glycerine has its greatest effect on the right. So great an authority as Jacobi advises the use of large doses of digitalis in these conditions, frequently repeated, and discontinued as soon as the desired effect is obtained; however, he uses nitro-glycerine in conjunction with it. Continued use of either of these drugs is not to be recommended.

Alcohol in children had better be used sparingly, not at all at first, but increased if need be toward the crisis. Many cases do better without it at all, while some require it in large quantity. Each individual case must be decided by the attendant. Cohen has given as one of the causes of heart-failure a tendency to the formation of clots; the ammonium salts keep the blood alkaline and fluid, and are more useful thus and as stimulants than as expectorants. The latter are not needed until after the crisis.

The writer has had no experience with the serums, so highly vaunted by some, but the consensus of opinion seems to be, that none has yet been made that can be trusted.

The fever is best relieved by baths or packs. Cold should be used if the reaction is not too great, but if the feet and hands become chilly after a bath, or are cold before the bath is given, hot sponge baths or packs will reduce the temperature and stimulate the circulation better than cold, and should be preferred. The coal-tar products benefit the druggist far more than the patient, and should not be used. Ice to the head, heat to the feet, and small doses of calomel, best relieve the delirium.

In convalescence, avoidance of sitting up too early, tonics, and care in feeding, will hasten recovery.

The great thing to avoid in treatment of the disease in children is overdoing. Their recuperative powers are enormous, and if they are given a fair chance will recover. The physician's function is to foresee difficulty and avoid it if possible, and to stand by and extend aid when difficulty comes. Never do too much; avoid unnecessary interference.

DISCUSSION ON DRS. SOMMERFIELD'S AND HULL'S PAPERS.

Dr. J. W. Duncan: I did not hear Dr. Sommerfield's paper, and do not know what he said about veratrum. Dr. Hull did not say anything about it, I believe. My plan is to rest the heart and support it with veratrum. If you have a case of pneumonia, not the typhoid type, give the veratrum and combine it with paregoric, or some preparation of opium. It will rest the heart and is not dangerous, and you can give a child two years old a drop every two hours. You can give an adult one to five drops, and repeat it as required. I always combine it with opium. I agree with the doctor in every part of his paper, but he did not mention the veratrum. It has been in use for forty years, and many doctors have gotten good results with it. Of late many doctors leave it out entirely, but it has a specific effect in pneumonia. I agree with the doctor in the other lines of treatment.

ALBUMINURIA AND BRIGHT'S DISEASE.

By E. BATES BLOCK, M.D., Atlanta.

When we speak of albuminuria, we mean in reality the presence of proteids in the urine, and these may be either serum albumin, serum globulin, albumose, peptone, fibrin or nucleo-albumin.

It may seem a waste of time to most of you to review the common tests for albumin, but there are some points which must be constantly borne in mind, or in our haste we may neglect them.

The heat test is perhaps the most satisfactory, but it is important to remember that before boiling the urine should be rendered faintly acid, and this is best done by adding acetic acid, if the urine be not already acid. If the urine is not acid at the time of boiling, the proteid matter is liable to be converted into alkali albumin, which is not coagulated by heat, and thus the presence of small quantities of proteid matter may be overlooked. It is necessary to avoid overacidity of the urine, for if it is rendered acid, with a strong mineral acid, the proteid coagulum may subsequently be redissolved. It is easy to distinguish the precipitation of phosphates on boiling by the subsequent addition of acetic acid, which causes it to be redissolved.

The acid test is not so delicate as the heat test, but it is very valuable, because by its use albumoses can be detected, bodies which are not precipitated by heat. The characteristic reaction of albumose is that the precipitate

formed by nitric acid dissolves on heating and reappears on cooling. Many resinous bodies, after the administration, are excreted in the urine, and these substances on the addition of an acid give a precipitate that may be mistaken for albumen. This is especially true of copaiba and oil of turpentine. The precipitate can be distinguished from proteid by its solubility in alcohol, but the addition of alcohol to nitric acid may cause an explosion. The sources of error with the nitric acid test are that if the nitric acid and urine are mixed the albumin may be missed, as by effervescence, due to nitrous acid, or carelessness, or by the formation of crystals of nitrate of urea, in concentrated urines, but the line is crystalline in appearance.

A cold saturated solution of picric acid gives a very delicate test, but is probably too delicate. Mucin is precipitated, as well as ordinary proteids. Quantities of proteids are discovered by it, which are probably of no serious clinical importance. This test has been more especially used in the investigation of cases of so-called physiological or functional albuminuria.

The copper sulphate and potash test gives a rose color with albumoses and a violet color with ordinary proteids. It is a better test for albumoses in small quantity than nitric acid.

The salicyl-sulphonic acid test is intermediate in delicacy between nitric acid and the heat and acetic acid test. A cold saturated solution of salicyl-sulphonic acid in water is used, and one to three drops are added to the urine and shaken. The rapidity of precipitation gives some idea of the amount of proteids present. Albumoses and peptones are precipitated by this test and dissolved on heating, and reappear again on cooling. It does not give any precipitate with bile salts, urates, alkaloids, nor with urine

containing the resin copaiba. With a large amount of mucin, a small amount of precipitate is obtained. Normal urines give no precipitate with this reagent.

By saturating the urine with ammonium sulphate all the proteid matter except true peptones are precipitated.

Magnesium sulphate is used to precipitate serum globulin alone, as it does not cause any precipitation of serum albumin or of albumoses.

The chief forms of albumin are (1) serum albumin, which for our purpose will also include serum globulin, and (2) nucleo-albumin, a mucin-like body, which was formerly confused with mucin. Both are precipitated by heat and acetic acid and by picric acid. The distinguishing tests are:

1. Nucleo-albumin gives with acetic acid and dilution a distinct cloud, while serum albumin gives at most a haze or nothing at all. Acetic acid alone precipitates both albumin and nucleo-albumin, the former less rapidly; but on dilution the nucleo-albumin reaction is not diminished or may be somewhat increased, while the haze with albumin becomes less distinct in proportion to the dilution.

2. Heller's test gives a distinct line, with albumin at the junction of the two fluids. But with nucleo-albumin the ring forms one-half to one centimetre above the junction, or, if there is no ring, a haze is produced throughout the solution.

3. A saturated solution of sodium chloride with acetic acid when heated gives a faint reaction with nucleo-albumin, but a distinct one with serum albumin.

4. Ferrocyanide of potassium and acetic acid, which is very sensitive to serum albumin, gives a reaction with nucleo-albumin only if it be present in considerably more than a trace.

5. A saturated syrupy solution of citric acid precipitates nucleo-albumin much more readily than serum albumin. The ring method, as in Heller's test, is the most satisfactory way of making the test.

Mucus also gives some of the above reactions, as, for example, with heat and acetic acid, salicyl-sulphonic acid and picric acid, as well as acetic acid in the cold, but it is present only in very slight amount. It does not give the ferrocyanide of potassium test if performed in the right way; that is to say, if the urine be added to the ferrocyanide and acetic acid solution, and not as the test is often made by adding the ferrocyanide solution to the urine, or by adding acetic acid first.

There is no single test upon which reliance can be placed to distinguish absolutely between nucleo-albumin and serum albumin, but these tests systematically used, in order, will suffice to make the distinction quite clear in most cases (West).

If now it is determined that proteid matter is present in the urine, it remains to be determined what the significance is. It is clear that if the urine can be concentrated by evaporation and a delicate enough test is applied, proteid matter would be found in all urines in minute traces. Possner states that by sufficiently delicate tests albumin may be shown to be present in the urine of every one (West). There is always a certain amount of disintegration of cells going on in the body, and this necessarily gives rise to a small amount of albumin, but when we speak of albuminuria, we mean ordinarily that it is in sufficient quantity to be discoverable by the ordinary tests in use. But it is just here that we all have some difficulty; we see occasionally specimens which show such a faint trace of albumin, that we are left in doubt whether to say it is present or not. I saw recently, with Dr. Kime,

a girl aged thirteen years, whose urine showed such a faint trace of albumin with the heat and acid test that it was difficult to say whether it should be present or not, and yet the child died of Bright's disease. It is interesting to note that in three microscopical examinations, after centrifugalizing, that no casts were found. But if albumin be with certainty present, we must then consider that it may be from a cause lying in the kidney itself, or from some cause outside of the kidney. If the latter, then it may be due to some changes in the tissues or blood before the blood reaches the kidneys, or it may have become mixed with the urine after the excretion of the urine by the kidneys.

West's classification is as follows:

Albuminuria	Prerenal	Obvious cause.	Heart disease, fevers, etc.
		No obvious cause	"Physiological"
	Renal	No obvious cause	
		Evident renal disease	
	Post-renal	From urinary passages, generative organs, vagina, etc.—i.e. accidental.	

As examples of the last group may be mentioned cystitis, gonorrhea, discharges from the uterus and vagina, prostate or seminal vesicles. In such cases it is very necessary to remove the pus, etc., either by sedimentation, centrifugalization or filtration. Even then a faint trace of albumin may remain, but it is rarely more than a trace.

Aside from such causes, albuminuria has been produced in perfectly healthy persons by excessive albuminous diet (called dietetic albuminuria), violent muscular exertion, cold bathing, exposure to cold. There has been much discussion in the last two decades on the albuminuria of the apparently healthy, such as postural, dietetic, cyclical or intermittent albuminuria, but gradually evi-

dence is accumulating to show that these persons are in reality not healthy, and that a pathological basis exists for the so-called physiological albuminuria.

When we consider the figures on the frequency of albuminuria in the apparently healthy, they are found to be surprising. Thus, Leube found it in 30 per cent. of people apparently healthy. Furbinger (children), 10 per cent. Goodhart (all ages), 2.6. Boys, 22 per cent. Stirling found the percentage average of albumin from age of twelve to sixteen was 20.8 per cent., while from twelve to ninety-four years it was only 25.6. He found a gradual increase in the frequency of albumin from age of twelve to fifteen. There is a remarkable frequency of albumin before the age of twenty-five as compared with patients over twenty-five years of age, and after that a gradual rise in frequency as age advances, as shown by Stirling.

Levison examined 336 healthy adults; 40.47 per cent. showed a proteid of some kind. Serum albumin in 22.02 per cent., nucleo-albumin in 18.05 per cent. The serum albumin in 22 per cent. was quite minute in 12 per cent., and only in 10 per cent. would have been easily recognizable by the ordinary methods. No clinical difference could be detected between cases with serum albumin and nucleo-albumin. In babies up to a few months old, Holt quotes Cruse as having found albumin in 28 out of 90 cases, i. e., 31.1 per cent. From five to twelve years, Ward found albumin with heat and acetic acid in 24.16 per cent., but only as a faint trace in all except 7.5 per cent. From ten to eighteen years, Stirling 20.8 per cent.; Ribbert, 22.0 per cent. (summer 29.8 per cent., winter 16.0 per cent.); Duke, 22.0 per cent.; Grainger Stewart, 17.0 per cent. From eighteen to twenty-five years, all young soldiers range, from Levison, 47.25 per cent., to

Zeehuisen, 14.6 per cent. The average percentage for 1,762 soldiers was 27.45 per cent. Out of Levison's 47.25 per cent., ordinary tests would have shown albumin in only 14 per cent. Albumin was more often observed after drilling than before or without drilling. According to Marie, Hwass examined 635 soldiers and found albumin in 15.4 per cent., and stated that it was neither more frequent nor more abundant after the military exercises. Petersen examined 1,000 soldiers and recruits by Heller's test only, and found albumin in morning urine on rising in 3.79 per cent., after three hours drill at 11 A. M. in 15.11 per cent., and at 6 P. M. after two hours' drill in 9.02 per cent. Out of 4,488 persons, under thirty years of age, who applied for life insurance in the Provident Clerks' Life Assurance Association, only 0.55 per cent. showed albumin. In another company, 1.0 per cent. For all ages life insurance examinations show, in 10,400 cases, an average of 7.6 per cent. (West).

There has been much research on albuminuria in cases which showed no casts and no other evidence of renal disease, and to these cases various names have been applied, as "albuminuria of the apparently healthy," "physiological albuminuria," "intermittent albuminuria," "albuminuria of adolescence.' In 1885 Pavy introduced the term "cyclic albuminuria" to replace these, and he describes the malady as follows: "In the early morning the urine is free from albumin. Albumin then shows itself, it may be at 9 or 10 or 11 A. M., or not till the early part of the afternoon. After reaching its maximum it declines, and often by the evening it has disappeared. It is rare to find that it has not disappeared by bedtime." He concluded that the cause was the change of position on rising from bed. Other names which have been applied to this condition are "albuminurie orthostatique," "albu-

minurie de la station debout" (Teissier), "neurotic albuminuria," "Die Pavy'sche krankheit," "maladie de Pavy," etc., but credit is due to Stirling for first clearly appreciating an essential point in the production of cyclic albuminuria, and in showing that the albumin was never excreted if the patient were kept lying down, had no relation to breakfast or to exercise, and that it was brought on only by assuming the erect posture. He therefore gave it the name of "postural albuminuria," which seems more expressive than the other terms, and is likely to come into general use. According to Sutherland, so long as the patient remains lying down in bed, even six to nine months, there is no albumin, but it reappears as soon as they get up.

Stirling investigated the urine in 369 boys, and found albumin present in 77. The specimens examined were passed three hours after rising. It is interesting to note that he found that those playing wind instruments had albumin much more frequently than those who were not in the band. Thus albumin was present in 20.8 per cent. of all those investigated, while of those in the band 59.4 per cent. had albumin. According to him, Lauder Brunton referred the albuminuria of cold bathing to pulmonary spasms, and Schreider has shown by experiment that compression of the thorax in young subjects for ninety seconds will cause albuminuria.

Sutherland says: "This variety of albuminuria may be described as cyclic in character, postural in origin, and adolescent as regards the period of life when it most frequently occurs."

The albumin may appear in the urine at any time after rising from bed. According to Marie, it has been found ten and fifteen minutes after rising, but for clinical purposes it is usually taken about three hours after rising.

In a paper by Huger, he calls attention to the fact that if the head of the bed of the patient were raised, so that it formed an angle of 45 degrees or more, albumin appeared in the urine, even if the patient were kept quite still. It is interesting to note that a double cycle may be produced in a day, thus there may be no albumin before rising, but appears soon after rising; if the patient is put back to bed, it disappears, and again reappears after rising.

Sutherland, in a paper published in 1903, said: "It is not accompanied by any definite evidences of organic renal disease, such as hematuria, tube casts, low specific gravity of the urine, cardio-vascular disease, or retinal changes, nor has it ever been known to terminate in organic renal disease." "On the other hand, it must be remembered that in the earlier stages of renal disease, albumin may be present only when the patient is out of bed and taking exercise." "Such cases are not to be confused with those of orthostatic albuminuria, and can easily be distinguished by the above tests." In orthostatic albuminuria, the pulse tension is normal or lowered, and there is a characteristic want of tone in the whole vascular system. Sutherland had forty cases of postural albuminuria, and of these fifteen, or 37.5 per cent., had movable kidneys. He remarks that this represents more cases of movable kidney among forty cases of postural albuminuria than among all other cases examined in the Children's Hospital in fifteen years' service. Other cases of movable kidney associated with postural albuminuria were reported by Bourcy and Nibiere. These observations must be regarded as especially significant.

In order to preserve the identity of this interesting disease, it must be remembered that the term "postural albuminuria" does not cover all forms of albuminuria in the

apparently healthy, nor all forms of albuminuria which are not dependent on actual disease of the kidneys, and it should also not be forgotten that a cyclic element as regards the appearance of albuminuria has been found to occur in typical Bright's disease. A few writers have claimed to have found a few hyaline casts, but those who have had most experience with the disease state that they have never with certainty found casts of any variety present, as Sutherland, Heubner, Stirling (one or two doubtful hyaline casts). Bradford, on the other hand, says that in a considerable proportion of cases of physiological albuminuria the use of the centrifuge shows that the urine contains definite formed elements, such as white blood-cells, casts, spermatozoa, etc. In other words, the presence of casts in small numbers is not restricted to pathological albuminuria.

As regards the character of albumin found, it is usually a mixture of serum albumin and nucleo-albumin, although one or the other may be present alone. According to Marie, peptones and pro-peptones may also be present. The amount of albumin ranges from a faint trace to 0.1 per cent., or even 1.4 per cent. The amount varies from day to day, and is diminished during a period of good general health, while exacerbations of the affection are characterized by headache, lassitude, and an increase in the albumin.

While some writers found their cases by accident, and state that they had no symptoms, Sutherland found the symptoms fairly characteristic, and is quoted as follows, briefly: "General ill-health, nervous, excitable, emotional; usual age of onset, ninth to twelfth year; sleep badly, night terrors, talking in sleep or somnambulism. Lethargy, easily tired, easily depressed, prostrating headaches which may be accompanied by vomiting, visual disturb-

ances, etc. General aches, sweat easily on emotion, excitement or exertion. Symptoms get better at times, worse at others. Sometimes, however, there are no symptoms at all. Anemia, tendency to redness or blueness and coldness of the extremities usually exists, and the patients are subject to flushing or fainting attacks, and to passing erythematous eruptions. Swelling about the eyes and ankles is not uncommon, but is usually transient. There may be some irregularity of cardiac action. A neurotic parentage is common and it is apt to occur in families. Huebner reported three girls who were sisters, Lacour three in one family, and Schon two cases. The disease is commonest between the ages of ten and sixteen.

The albuminuria of Bright's disease can be distinguished from that of pure cyclic albuminuria by two leading differences, viz.: that the albumin is never entirely absent, even in the recumbent position, and that tube casts and other evidences of organic renal disease are always present. In nephritis, there is a definite increase in the amount of albumin, induced by the erect posture. Cyclic albuminuria must be distinguished from other forms of functional albuminuria. (1) Dietetic albuminuria. Keep the patient in bed. Test before food is taken. (2) Exertion albuminuria. History of exertion. Exertion albuminuria is usually accompanied by the presence of casts. West recommends the use of Heller's test in examining for albumin. It shows one part in 10,000 at once, and one part in 35,000 in four minutes. He says an amount of albumin which can not be shown by Heller's test may so far as albumin is concerned, be disregarded clinically. West does not regard the albumin in any case as strictly physiological, and says it is always pathological, though not necessarily renal. Many get well, some continue to pass albumin for many years, and yet remain in good

health, and others ultimately develop signs of renal diseases. Albumin has been known to exist for twenty years without other evidence of disease appearing. Yet maintenance of health for many years is not incompatible with damaged kidneys and premature death. Duke says that some cases are only temporary, while others result in chronic disease of the kidneys. At the same time, other writers say that they know of no authentic case of postural albuminuria which has resulted in Bright's disease. It is, however, certain that after the age of twenty-five years the chances of renal disease increase rapidly.

Rabagliati found in 3,246 deaths from various causes that 4.3 per cent. were due to Bright's. In 6,400 adults examined (apparently healthy) albuminuria occurred in 7 per cent. and casts in one in four of these.

Carefully compiled statistics show that in apparently healthy people who have albuminuria the mortality in eight years for those under forty years of age is 17 per cent., while those over forty show a mortality of 30 per cent., a very considerable death-rate for presumably healthy lives. In those who have both albumin and casts, the mortality was 20 per cent. in eight years for those under forty, and 50 per cent. in eight years for those over forty years of age. Rabagliati concluded that for the purpose of life insurance (1) over forty reject, (2) under forty load heavily, (3) in young adults rate up moderately. The death-rate in healthy males with albuminuria from age thirty-two to thirty-six is 8.16 per cent., while in healthy males, generally, it is 3.33 per cent. From ages 50½ to 56½, the ratio is 17.21 to 9.29 per cent. These statistics show that importance must always be attached to the appearance of albumin in the urine, even in the apparently healthy. The observation of Eales is also instructive. Out of fourteen cases sent to him as instances

of physiological albuminuria, he found five with marked albuminuric retinitis, showing well-advanced kidney disease.

West concludes that (1) the so-called physiological albuminuria is always pathological, even if not always renal, when the amount of albumin is more than the merest trace. (2) It is probably pathological even in those cases in which the amount of albumin is but a trace and no cause obvious.

If renal derivatives are found, as well as albumins, the chances of renal disease are greatly increased. Even if no renal derivatives are found, the kidneys in all probability are granular, if the arteries are thickened and the pulse tension high.

We must of course take into consideration the condition of the patient before forming an opinion of the significance of albuminuria. Toxic or febrile albuminuria may be transient and lead to no permanent disease of the kidneys. I have seen many cases of slight albuminuria associated with the deposit of calcium oxalate crystals, uric acid crystals, or even phosphaturia, in which the albumin disappeared after the correction of these conditions. Active or passive congestion of the renal vessels must also be considered as having a significance different from organic disease of the kidneys. This may occur from heart or lung disease, and abdominal diseases leading to pressure on the renal veins or vena cava. The quantity of urine is then small and may contain blood and blood casts. In cardiac and pulmonary cases, the quantity of albumin is small, but it may be large in pressure on the renal veins. From the mere amount of albumin no conclusion can be drawn as to whether the albumin is due to passive congestion or to nephritis. The question is best answered by the character of the casts present.

In passive congestion, blood casts and hyaline casts are ocasionally found; in nephritis, on the other hand, casts containing definite renal elements are found.

The albuminuria of pregnancy needs closer study. It is not improbable that interference with the renal circulation may be found to be the cause of it in many cases. The disappearance of albumin is so common that this explanation seems more than probable.

In some febrile diseases, more especially pneumonia, and in cases of suppuration, such as empyema and cerebro-spinal meningitis, albumoses are present in the urine in comparative abundance, but rarely alone, serum albumin and globulin being present. The albumoses are formed in the exudation produced at the seat of the disease. In renal disease the proteids are usually present, as a mixture of serum albumin and serum globulin. Sometimes, albumoses are present and occasionally in renal cirrhosis in large quantities, and serum albumin and serum globulin are present in traces only, so that if the urine is tested in the ordinary way by boiling the presence of a large quantity of proteid matter may be overlooked. In renal cirrhosis the albumosuria occurs without the presence of any inflammatory complication. Cases of albumosuria in renal disease are rare.

Harrison has reported three cases of albuminuria with very tense kidneys in cases suspected of calculi, but the albumin disappeared after incision and drainage of the kidney most effected. It must not be forgotten that certain drugs, such as antipyrin, arsenic, quinine, etc., may cause albuminuria.

DISCUSSION ON DR. BLOCK'S PAPER.

Dr. Louis H. Jones: I don't think Dr. Block could have chosen a subject of more importance to the Association than to call attention to the examination of the urine. It

is probable that there is not a pathological condition of the body which an examination of the urine will not throw some light upon. Many doctors will take a specimen of cloudy urine and not filter it, therefore a small amount of albumin coagulated by heat could not be recognized. We should always filter the specimen, if it is not clear. The percentage of albumin is no indication of the gravity of the condition. I think the heat test is the best working test that we have, but as Dr. Block says, it must be carefully done. Many men will pour some urine in a test tube and pour in a great amount of acid, and, therefore, will not get a coagulation by heat, the albumin being converted into acid albumin. The acid reaction should be produced by a few drops of 25 per cent. acetic acid solution. If the test tube is properly inspected against a dark surface it is easy to recognize the presence of a small amount of albumin. Heller's, or the cold nitric acid test, is perhaps not so good as the other. If you have an excess of urates they may be converted into acid urates. It is best to stick to one test and become familiar with that test.

One examination of the urine should not be relied upon. If we take a specimen that is passed after a meal we might get albumin, when we would not get it at another time. The early morning urine is not so good as the ten o'clock or the afternoon urine; that is, a specimen taken during active digestion. I would like to impress the fact that a grave lesion of the kidneys may exist where only a small quantity of albumin is shown, and oftentimes intermittently. We must never lose sight of the general clinical picture; especially valuable is the pulse and heart action, as showing the arterial tension.

THE SUTURE AS A FACTOR IN PRIMARY UNION.

By JAS. B. MORGAN, M.D., Augusta.

The ideal is realized in modern surgery only when we can secure the repair of wounded tissues by primary union. This, unfortunately, is not always attained, but, nevertheless, it is the goal toward which we should ever aim, and most truly "'tis a consummation devoutly to be wished."

Just so far as we fall short of this high ideal, do we fail to meet the exacting demands of aseptic surgery. We are told by careless, and sometimes incompetent, surgeons that good results often follow inflammation and suppuration of wounds. This is true, many wounds are compelled to heal by secondary intention, some from primary infection, others from faulty technique, but other conditions follow just as surely; unsightly scars, ventral hernias, and sometimes death, are a few of the sequellae to failure in primary union.

It is no answer to the requirements of aseptic surgery to say that wounds have, and can, heal by secondary intention. So, too, can an abdomen be opened by an unclean jackknife, or a limb amputated by one blow of an axe, but it would be difficult to find a surgeon who would contend that these methods were ideal, or that the best interest of the patient had been secured.

Modern surgery assumes that in an operation asepti-

cally performed, upon an aseptic patient, by an aseptic operator, there should be union by primary intention. Many factors enter to prevent or modify this ideal result. Micro-organisms lurk everywhere and at all times. They are in every breath we draw, in much of the water and in many of the articles of food that we consume, and, indeed, exist always in the alimentary canal and in all parts of the body exposed to contact with the air. It has been well said by a great operator that every surgical operation is a study in bacteriology. Our many failures in reaching the ideal in our surgical work confirm the above statement. We are taught as an elementary proposition that the three essential conditions favoring the growth of bacteria and other micro-organisms are: requisite heat, moisture and atmospheric air.

This being true, if we seek primary union, we must avoid or lessen the conditions which favor bacterial growth.

It is of course next to impossible to diminish or prevent the growth of bacteria in a wound by either raising or lowering the temperature of the wounded parts, therefore we are limited in our efforts in this direction by trying as far as possible to preclude the other two conditions favorable to bacterial development, viz.: to keep all wounded surfaces as dry as possible, and to exclude them from the action of the atmospheric poisonous germs during the process of repairs.

To Prof. Lister we owe the grand and progressive idea of excluding micro-organisms, in and around the wound, by solutions of various kinds of antiseptics.

We now know that these solutions not infrequently injure the delicate tissues and furnish one of the indispensable requisites of germ life and growth, namely, moisture.

As a result, the theory and practice of what is known as antiseptic surgery are rapidly giving place to the more rational science and art of aseptic surgery.

It is not my intention or inclination, if the limits of my time would permit, to try and mention the many factors which can, and do, lower the high ideals, in earnest attempts at aseptic results.

Some are from carelessness, others accidental; some occur from ignorance, others from unknown causes. There is no agency, appliance or instrument employed in a surgical operation which can not, under some circumstances, produce infection of the wound.

There are many wound infections that can be traced to some specific transgression of aseptic technique. On the other hand, infections occur where the operator is at a loss to account for the cause. On such occasions we find it convenient and satisfying to our pride to invent some scapegoat. It is sometimes more agreeable to fix the blame on an inanimate rather than upon an animate object.

It certainly is wiser and sometimes safer to charge our failure to a dumb agent, instead of an articulate assistant. Therefore, when a wound that ought to have healed by first intention is found to be filled with pus, it is quite the custom to vent our spleen on the dressings, instruments or sutures.

Since it is very probable that the one who prepared the dressings and instruments is present at the operation, and the one who prepared the sutures is not, it naturally follows that a majority of our aseptic mistakes are boldly ascribed to fault in preparation of the suture material. That the material used for sutures is sometimes responsible for the infection I think can not be denied, but that the preparation of sutures is as defective in surgical clean-

liness as many surgeons would have us believe I don't think is confirmed by the facts as shown by observation and experience.

To enumerate the many materials which have from time to time been used or suggested for sutures would be useless and confusing. Catgut, kangaroo-tendon, horse-hair, silk, silkworm-gut and silver wire are the suture materials most commonly used at the present time.

Each has its warm advocates and active opponents—each its special advantages and contraindications.

Of all materials used for sutures, catgut is by odds the most popular, and has the widest range of adaptability.

Dr. Senn says "that no other surgical procedure has enjoyed the confidence of the entire profession as thoroughly as has the catgut ligature." And Nussbaum strongly states that "catgut is without doubt Lister's greatest discovery."

It is prepared in almost any size, strength and durability that any ordinary condition might require. If catgut could be rendered aseptic instead of antiseptic, and prepared as easily as silk, it would be the ideal suture and its employment well-nigh universal; but in these objections lie its defects and limitations. It is always difficult to thoroughly sterilize catgut. When it is aseptic its strength and durability are lessened, and when antiseptic it not infrequently acts as an irritant to aseptic wounds.

Nearly every surgeon of note, and every large hospital in the country, have a plan for the perfect sterilization of catgut, but the fact that so many methods have been used is a strong proof that no one of them has proved entirely satisfactory.

The quality that renders catgut so desirable as a suture material is that it is absorbed in the tissues, and yet it is this same property which makes its absolute sterilization so imperative.

Quite a number of responsible manufacturers are now engaged in preparing catgut for those who have not the facilities, inclination or time to prepare it for themselves. All reliable methods of preparation have been carefully studied, competent chemists and bacteriologists employed, and every scientific process invoked by these manufacturers to supply the needs of aseptic surgery. How well and how far they have succeeded in this direction is a subject provoking considerable difference of opinion among surgeons. Nearly every operator uses commercially prepared catgut at some time, and many all the time. Each has his favorite brand or kind; all others, of course, are greatly inferior in strength or purity, and perhaps in both.

Some hidden or accidental wound infection is often the sole and only cause for surgeons to condemn the entire produce of some particular method or manufacturer. This is manifestly unfair and illogical. For more than five years I have used exclusively commercially-prepared catgut for sutures and ligatures. During this time every size, prepared by every method, and by every reputable manufacturer, have been employed and results carefully watched. These investigations have forced on me the strong conviction that the selection of catgut prepared by any particular manufacturer was a matter of pure fancy and personal preference, and not of merit and scientific investigation.

From the many difficulties attending the aseptic preparation of catgut it seems safe to assume that the production of all manufacturing plants for this purpose must involve some danger to primary union. While this is true, have we any assurance that catgut prepared by individuals and private methods are less so? The improved facilities and scientific methods of large plants over in-

dividual effort are manifest in every line of manufacture. I know of no reason why it should not be the case in the preparation of aseptic catgut. At any rate the use of ready-prepared catgut by surgeons is on the increase, and infection of wounds on the decrease. It is the method of application of sutures, and not the mode of preparation of materials, that so often produces wound infection. From careful observation and deep interest in the subject I am convinced that the principal drawback to primary union in aseptic wounds is faulty methods in the application of the sutures, rather than in the material used.

No union by first intention can occur unless the processes of regeneration are allowed freedom and activity. Restoration of structure and function in divided wounds necessitates a return of the interrupted circulation by the formation of new blood-vessels, and a minimum amount of new tissue. Therefore, any agent which interferes with the blood-supply in the lips of a wound, or produces inflammation, and thereby forms excessive new material between the apposed edges of the wound, tends to retard or prevent primary union. Healing by primary intention takes place in all wounds in which all the new material produced is utilized in the process of repair, and in no others.

The application of any form of suture that restricts circulation, or produces inflammation, or causes strangulation and necrosis, becomes a potent factor detrimental to the direct healing of the wound. Many surgeons, otherwise good operators, are conspicuous in their lack of even ordinary skill in stitching wounds.

I have seen surgeons, adepts at making a quick, smooth incision, who could perform an ideal operation, but could not sew a patch on the seat of a pair of trousers that

would pass muster in a company of bootblacks. It is the one item of technique that some surgeons never learn. They seem to regard it as the least important and essential accomplishment of a surgeon's equipment; and even among our best trained operators how often have we seen them, when tired from a long, tedious operation, or anxious to see another patient, delegate the closing of the wound to some inexperienced and unskilled assistant. When we consider that in every aseptic incised wound suturing is indicated, it at once becomes apparent what a vital influence the proper application of sutures must have in the healing of wounds. There is no part in the technique of an aseptic operation that requires more skill and care than the closing of the wound; not alone for the cosmetic effect, but, more important, for the best functional results.

I do not care anything about the surgeon's choice of some one of the many fancy forms of special sutures. If no particular kind of the hundred and one suggested and exploited is found to be entirely satisfactory, why, he has the right to invent a new one, or to modify and thereby greatly improve some other surgeon's pet suture.

The suture material is perhaps not of a paramount importance in primary union.

Some few very excellent operators use silkworm-gut and other non-absorbable material for buried as well as for external sutures, depending upon withdrawing them when union of wound is complete. The consensus of surgical opinion is largely in favor of absorbable materials for buried sutures, of which catgut is decidedly the best, and whatever material individual fancy suggests for superficial suturing.

What I do consider important and vital is the manner in which the sutures are introduced and tied.

In all wounds where deep sutures are necessary it is

an imperative duty to unite with absolute accuracy tissues of the same anatomic structure and physiologic function.

Peritoneum, fascia, muscle, nerve and tendon must be separately united. Accurate approximation of the several parts of a deep wound is impossible without the buried suture.

Each distinct layer of deep wounds must be united by a separate row of stitches on the same plane, and not trust to the hit or miss results of a through and through suture. The latter form of suture, including all tissues from skin to peritoneum, is simple, and can be applied with rapidity, but its defects overbalance its advantages. It holds too much tissue in its grasp.

Soft parts of unlike character and strength are subjected to the same degree of tension; delicate peritoneum and soft adipose tissue are brought together with the same force and material required for strong fascia and tough skin.

Pus from stitch abcess finds a ready-made canal and guide to the abdominal cavity. This form of suture nearly always leaves unsightly scars and functional impairment.

The distance from the edge of a wound at which sutures should be placed is regulated by the character of the tissue involved, and the depth and tension of the wound; as a rule, they should be introduced as near the free edge of the wound as is compatible with the security of union. From a quarter to an eighth of an inch from the border is about the usual distance at which sutures should be introduced in most wounds. If too near, they cut through before union is secured; if too far away, the borders overlap or turn up, and thus cause imperfect, delayed and distorted union.

But the cardinal sin, in the closure of wound, is to draw

the sutures too tight. This fault is the most common and by far the most disastrous of all mistakes in suturing.

All wounded soft parts swell more or less before union is established, and even moderately tight sutures increase pain and retard union if they cause no worse results. But when sutures are drawn so tight as to leave the tissues within their grasp puckered and white, then ideal primary results become impossible. The blood-supply so essential to repair is impeded or arrested, strangulation and local necrosis follow; the impaired vitality of the restricted tissues, with the increased moisture from inflammation and the unavoidable exposure of the parts to the air, renders infection of the wound almost inevitable.

Bacteria are omnipresent, and faulty technique in the closure of a clean wound has resulted in creating a soil and conditions most inviting to their growth.

Every requirement of antiseptic and aseptic surgery may be strictly observed at an operation, and yet all the dire results of an infection follow the improper placing of a suture.

DISCUSSION ON DR. MORGAN'S PAPER.

Dr. F. W. McRae: It seems to me that this paper is one of too much importance to allow it to pass without some comment. I have heard Dr. Morgan read a number of papers before this body, but to-day he has read the best paper, which touches the most points in surgery. There is no doubt, as he has said, that many wounds fail to heal promptly because of improperly tied sutures.

I have not much confidence in manufactured suture material. For several years I used sutures from one manufacturer and I had no trouble, but all at once in my hands, and in the hands of other surgeons in Atlanta and in New York, there was undoubted infection from this material, and cultures by the best pathologists in New York showed

that this batch of suture material was not sterile. That is a thing that is liable to happen to any of us. The surgeon ought to feel directly responsible for everything that goes into the wound. I feel that we ought to resterilize our suture material. When it is put up dry it is usually defective at points. Any one can test it by heating it to 320 degrees and keeping it there for some time, and if there is a defective suture you can readily find it, because if there has been any moisture in that suture you will have a weak point. In sterilizing this material, time and again I have found one or two that showed this defective point. The surgeons will come more and more to prepare their own material. I will not advocate any method, as I could do so, but will not do so at the present time.

As Dr. Morgan says, through and through suture has had its day. If you will take the people who have been operated upon and examine them now you will find a ventral hernia, which no surgeon would feel could occur with any degree of certainty. Dr. Gibney investigated this subject thoroughly several years ago in the Hospital for Ruptured and Crippled, and a large per cent. of the cases had this hernia, and this could be greatly reduced by bringing the abdominal wall together, layer by layer. The point that Dr. Morgan makes about putting the sutures too far from the edge is an important one. If the surgeon will examine many of these cases he will find that the surface of the epidermis is brought together instead of the edges.

In conclusion, I want to call attention to leaving dead space. Where the layers have been separated so as to leave a dead space there will be an accumulation of serum and the formation of small abscesses, which, while not amounting to much, yet will give trouble.

APPENDICITIS, MEDICAL AND SURGICAL.

By R. R. KIME, M D., Atlanta.

In presenting the subject of appendicitis I am not writing for such men as Morris, Dever, Kelly, Price, Murphey, Oschner and Mayos, but from the standpoint of the average surgeon and general practitioner. Such men as the above, with their skill, experience and facilities, can reduce their death-rate to a point which the average surgeon throughout the country can not. So in discussing this question, if the appendix, in the common vernacular, should inquire: "Where am I at?" I would say between the surgeon and general practitioner in the deep blue sea of future investigation.

It has been but a short time since the fiat of the radical surgeon was—operate as soon as a diagnosis is made; but the present tendency is to modify that edict to some extent. Another statement equally as radical is that appendicitis has no medical treatment. The leading surgeon, that operates on one or two thousand cases in one or two years, sees more of the severe cases than the mild, and so it is with the prominent general practitioner, whose work is mostly consultation.

Hospital cases fall under the same class. The mild cases are the ones handled first-hand by the general practitioner, not deeming it necessary to call in a surgeon or send patient to the hospital. It is self-evident to any reasoning mind that a hurried operation within the first forty-eight hours of an attack, with an ascending inflam-

mation and infection, with imperfect home surroundings, with the annoyance and anxiety incidental to transferrence to a hospital and a hurried operation, will have a higher death-rate than an interval operation deliberately planned and executed.

This being true, it is only necessary to demonstrate that a greater number can be safely carried to the interval period. Just what the death-rate is in first attacks of appendicitis operated upon by the average surgeon or treated medically by the average physician has not been settled.

From my limited observation and experience I am fully convinced that first attacks of appendicitis judiciously and properly treated will give a greater per cent. of recoveries than can be secured by the average surgeon in operating as soon as a diagnosis is made.

Understand, I do not condemn operation during the first forty-eight hours, in fact advise such when the circumstances demand it, but I do condemn as unsound and unscientific the command to operate as soon as a diagnosis is made. The assertion that appendicitis is a surgical disease and has no medical treatment is productive of much harm. I am aware that this is a surgical age, that American people and surgeons have appendiphobia, that it is unpopular to say a word against the surgical fad of the day.

As a further evidence of this surgical tendency, we note that a medical college in our own midst has five or six professors to teach surgical subjects and but one to teach the unimportant subject of general medicine. In the March, 1905, issue of *Amer. Surg. and Gyne.* are articles by different men claiming appendicitis, pneumonia and typhoid fever as surgical diseases. The surgeon is an active worker; aggressive, progressive and seeking

new fields to conquer, while it seems the general practitioner is playing the Rip Van Winkle game.

I do not condemn surgery, as I do a little of it myself, but it should be utilized in a rational, scientific way, and not swayed by radicalism to the exclusion of remedial measures that will give equally as good results.

If the average surgeon throughout the country operates upon every case of appendicitis as soon as a diagnosis is made, he will have a death-rate of ten to twenty per cent., depending upon his skill and surroundings. Any ordinary practitioner should be able to carry out a judicious medical treatment with a much less death-rate. The expert surgeon in this line of work can operate on all cases with a death-rate of two to ten per cent. The interval operation with the expert should be about .5 of one per cent. If the average surgeon would limit his work to interval operation and those with severe symptoms within the first forty-eight hours, far more lives would be saved and much useless surgery avoided.

Dennis, N. Y., *Amer. Jour. Surg. and Gyn.*, states:

"Dr. Richardson reports 574 interval appendectomies, with no deaths.

"The Mayos, 1,668 interval operations, with two deaths."

Dr. A. C. Bernays, St. Louis, states: "Mortality in all cases surgery, 8.5 per cent. Mortality in expectant treatment, twelve to sixteen per cent."

Dr. R. T. Morris, N. Y., reports mortality in last 1,000 cases, two per cent.

Dr. J. B. Murphey, *Amer. Jour. Med. Sci.*, states: "We will admit eighty per cent. of cases recover from attack; that twenty per cent. approximately of the cases either die in the first attack or have recurrences. His death-rate in 2,000 cases is ———."

Dr. Deever reports a death-rate of two per cent. in surgical treatment of 1,000 cases.

Leube's Phys. Diagnosis, p. 313:

"The great majority of cases (statistics vary, being about ninety per cent.) result in spontaneous recovery."

Boas, Diseases of Intestines, p. 499:

"Sahli, Renvers, Kleinwachter, Rotter, Curschman, Aufrecht, and others, have brought forward a very impressive material to show the curative results of conservative treatment."

"Sahli collected the entire material of Swiss physicians, and thus gathered 7,213 cases.

"Of these 473 were operated upon, with a mortality of twenty-one per cent.; 6,740 were treated conservatively, with a mortality of 8.8 per cent. Relapses occurred in 20.8 per cent."

He also quotes, medically: Kleinwachter, mortality seven per cent. Curschman and Aufrecht, four to five per cent. Rotter, 8.9. Renvers, only three.

Surgical statistics vary from 9.6 (Murphey) to 24 (Richardson), average of about fifteen per cent. (Later Murphey and Richardson report a lower mortality.) He believes mortality will be decreased by increased experience, early operation, etc., but a mortality of five to eight per cent. will exist in appendicitis operations, no matter how timely and successfully the operation is performed (Rotter).

Internal Treatment—At "St. Hedwig Hospital (Berlin), 213 cases, Rotter gives death-rate 8.9 per cent.; Urban Hospital (Berlin), 132 cases, with mortality twelve per cent. (Bochardt); but of the sixteen that died, about fourteen were admitted with inoperable general peritonitis."

Some investigators report thirty to forty per cent. of

post-mortems giving evidence of appendicitis during practice.

Dr. Oschner has taught us that severe cases can recover without operations if properly handled. His death-rate of 2.2 in 1,000 cases have demonstrated that surgery is not always essential to recovery, even in cases of perforation or gangrene of the appendix. He also states that "all cases which are diagnosed reasonably early may be carried through any acute attack, no matter what its character may be."

Another evidence of the possibility of nature, properly aided, to handle these cases is the present tendency of many surgeons to advise waiting if the operation is not done within the first forty-eight hours, or while the infection is practically confined to the appendix.

This is certainly an admission that surgery is less successful than internal treatment at this stage of the disease or that nature, after the second day, is better able to take care of the case than the surgeon.

In arriving at our conclusions we must remember hospital cases are not a correct guide as to results and mortality, neither are those from a consulting surgeon or those of the general practitioner, whose work is principally consultation.

The mild cases, in nearly every instance, are handled by the physician without consultation or being sent to a hospital; thus it is many mild cases recover without operation.

From my own observation, which I hope is based upon a reasonable amount of discrimination and judgment, I would say that the general practitioner whose death-rate is above two to five per cent. in appendicitis has something wrong in his treatment of these cases. Every case of appendicitis can not be treated alike no more than every

case of any other disease. Discrimination and judgment must be used in each case. The physician who produces active catharsis in severe cases is as dangerous, or more so, than the one who gives opiates and coal-tar derivatives in large doses in the first stages. Mild catharsis in properly selected cases in the early stage has its benefits. Opiates in small doses just sufficient to relieve severe pain or quiet peristalsis after a diagnosis is made, used per rectum or hypodermically, has its advantages in selected cases. Oschner precludes all food and medicines by mouth, in severe vomiting uses stomach lavage and nourishes patient by rectum, giving predigested foods in small amounts, with salt solutions. Large amounts thrown into rectum excites peristalsis, which is to be avoided, especially in severe cases.

Cheyene and Burghard, Surg. Treat., Vol. 6, "prohibits food by mouth when vomiting, and allows no solid food until temperature remains normal several days."

"Advises salol or naphtaline, condemns purgatives, allows enemata with caution in some cases to move bowels, objects to antipyretics, allows small doses of opiates guardedly in some cases, just sufficient to relieve pain, and states that belladonna and quinine will frequently relieve the pains." All agree to the use of hot or cold applications for the relief of pain. As a general line for internal treatment we would suggest the following as worthy of confidence and productive of good results, which will materially lessen the mortality in these cases.

For a mild case the following acts well, tends to disinfect the alimentary tract, lessen gas formation, quiet stomach, fortify nature's resisting powers and aid digestion:

Carbolic Acid—Papoid	aa	℥ ss
Glycerin—Listerin	aa	℥ i
Ess. Pepsin Fairch.	q. s	℥ ji

Mx. Sig. teaspoon 2 to 4 hours.

Alternate with

Salol —carb, Guaiacol–Salicine..... ... aa gr. iii
Adding $\frac{1}{8}$ to $\frac{1}{4}$ gr. Cal. first day.

In such a case salines or oil may be given or bowels flushed out, in order to remove offending toxic material within first twenty-four hours. If the case is more severe, but not vomiting and bowels not obstinate, the liquid and capsules may be continued, using nourishment by rectum.

If vomiting, with severe symptoms, then prohibit everything by mouth, wash out stomach and nourish by rectum in small quantities. Keep patient quiet in bed in every case, and require use of bedpan. Opiates should be avoided in all cases as much as possible, especially until the question of operation is decided, and then only sufficient to relieve pain and quiet peristalsis. The coal-tar derivatives are more treacherous in obscuring symptoms and depressing patient, and should not be used. No doubt our surgical friend is ready to say you can not disinfect the alimentary canal or appendix by internal antiseptics, yet he will scrub his hands with brush, soap and antiseptics for half an hour and not render them sterile, neither can he completely sterilize field of operation or abscess cavity, and yet he would not fail to use such means. Is not an alimentary canal distended with gas filled with decomposing material loaded with germs and toxines a menace to the patient and more likely to produce unfavorable results and convert mild into a severe form of infection?

If we can not disinfect the alimentary canal, destroy the germs or neutralize the toxines, we can partially do so and aid nature in conserving her forces, that she may be the better able to build up barriers to the invasion of the infection. The prime object in these cases should be to disinfect the alimentary canal, remove toxical material

from same when it can be done safely and early—later quiet peristalsis, avoid drastic catharsis, depressing vitality or obscuring symptoms by opiates or coal-tar derivatives, and sustain patient in the manner least likely to do harm.

In conclusion we restate our position:

1st. That the average surgeon will save more lives by operating only on the severe cases of appendicitis within the first forty-eight hours and those that suddenly grow worse after a few days of improvement, doing the interval operation on all that do not completely recover from first attack and in relapsing cases.

2. That internal treatment, properly conducted, need not have a death-rate of over two to five per cent.

3. That the death-rate can be reduced nearest to zero by the average surgeon doing the interval operation on those that do not fully recover or have relapses, and operating on the severe cases within the first twenty-four to forty-eight hours, and those that suddenly grow worse after a few days of improvement, leaving the remainder of the cases to judicious medical treatment. There is also a field for medical treatment in many cases after appendix has been removed in correcting the original cause of appendicitis or looking after existing complications. The surgeon should not dogmatically assert appendicitis has no medical treatment nor decry or exclude judicious medical treatment in these cases, neither should the general practitioner exclude the surgeon, but each should assist the other.

DISCUSSION ON DR. KIME'S PAPER.

Dr. J. B. Morgan: I have listened with a great deal of pleasure to the paper of Dr. Kime on a subject that we are all more or less interested in. If there is anything that is more dangerous to us than another it is to say that appen-

dicitis is sometimes a medical and sometimes a surgical disease. How are you going to discriminate when it is medical and when it is surgical? There is difficulty in making out a diagnosis of appendicitis, and when we decide that it is appendicitis are we then to say that it is sometimes a surgical and sometimes a medical disease? This would mean that a general practitioner could treat every case as well as a surgeon. I have only one case to regret, and that was because I did not operate soon enough. I have never seen a case that is medical. Because a case gets over an attack after using a few doses of salts, we should not say that it is a medical disease. It is dangerous to conclude that it is simply a medical disease, as this has probably caused the loss of more lives than by any other disease in the world.

Dr. W. F. Westmoreland: I want to state that I consider appendicitis to be always a surgical disease. It is just as well to state that every case of intussusception of the bowels is a medical case as to say that appendicitis is a medical disease. If every case of appendicitis should be operated upon at once, the mortality would be greatly reduced. The doctor states that they should be operated upon in forty-eight hours. This is often too late, as I have seen them dead in thirty-six hours after the disease was present. This, of course, was an extreme case, but it shows the rapidity with which these cases can ocur. It is impossible to tell whether you have the catarrhal appendicitis or the rapid fulminating type in the first few hours. If the doctor has the latter and does not operate he will lose his patient. If those bacteria which produce this type get into the abdominal cavity they will kill the patient. The idea of the medicinal treatment is that the patient can be dragged along and gotten well without an operation. The surgeon does not say that three-fourths of them will

not get well without interference, but if all cases were operated upon there would be less mortality than if we tried to treat them medicinally.

Dr. E. C. Cartledge: Dr. Kime did not mean to state that all cases were purely medicinal cases. I do not see how anybody can differ with a man who is a surgeon and who recognizes the value of the operation. There are doctors here who are not surgeons, and I would like to hear their views. When I left the hospital I was of the opinion that all cases were surgical, but after mingling with the general practitioners I have changed. Sometimes it is several hours before you can get the patient to the hospital to operate, and during this time you can often get your patient into a much better condition by giving enemas at once and emptying the bowels.

The great point is that these surgeons must not forget the medical side.

Dr. Curtis: I notice quite a number of gentlemen here have not much to say on this subject. I want to endorse everything Dr. Kime said about the medical treatment of appendicitis. I have seen several cases, but I can not state the exact number, as I can not always make a diagnosis. I have seen surgeons of experience who were sometimes in doubt themselves. In the treatment of the cases I have seen, I have used almost the same method as given by Dr. Kime. The treatment in all cases I have met with has been with mild cathartics, high enemas and hot fomentations, and under this treatment I have seen some cases which were diagnosed as appendicitis by myself and some surgeons get well.

Dr. J. L. Selman: Before the discovery of the laparotomy operation we found abscesses in the abdomen, and we did not know what it was. Now, we have them operated upon and many of them recover, where they died

previously. I have had Dr. Davis and Dr. Westmoreland to come to my town, and where they have operated early enough the patients have made an uninterrupted recovery. I believe that they should be operated upon, and the quicker the better.

Dr. J. W. Duncan: I have nothing to say only in commendation of Dr. Kime's paper. It is one of the most conservative papers I have ever heard on appendicitis. I heard some good papers years ago in Augusta, one on the surgical side and one on the medical, and he has combined the two.

Dr. R. M. Kime (in closing): I was writing that paper for the purpose of preventing the general dogmatic assertion that every case of appendicitis was a surgical case and to be operated upon by every surgeon in the country. Where you have the best conditions for operation and you can reduce the death rate, there is no doubt what is to be done. However, every case is not so situated that it can thus be cared for, and if the general practitioner will follow the instructions for medical treatment he will get best results.

REPORT OF A CASE OF ABSCESS OF THE LUNG; OPERATION WITH RECOVERY.

By W. D. TRAVIS, M.D., Covington.

On January 20, 1904, I was called to see Mr. W. H. S., married, age about forty-eight, whom I found to be suffering with lagrippe, with the usual symptoms of the disease. In a few days he developed a case of lobar pneumonia which involved both lobes of the left lung. The lung failed to clear up in the usual length of time, except in upper lobe, and I made an effort to hasten resolution by means of counter-irritation and internal medication. My treatment was of no benefit, and he soon developed ptus symptoms. His heart was weak and kidneys decidedly inactive. Ascites and anasarca in both legs, which extended up over the pelvis, was marked. Patient was unable to lie down, spent all of his time in a chair. He rapidly became weak and emaciated, had high temperature and hectic flush. His cough was painful and his sputa abundant, offensive and purulent. His surroundings were extremely bad from a sanitary standpoint, and on account of his general physical condition I hesitated to do any operation for a time. On percussion I found that instead of the dullness which had persisted since his attack of pneumonia, he had developed flatness, with the symptoms of a pleuritis. On aspiration I found an empyema, and decided to do a complete operation. Under chloroform anesthesia I made a free incision about four inches in length over the sixth rib at anterior axillary line

and resected three inches of the rib. The pus flowed freely, in fact so freely that I had to check its flow several times on account of the cyanosis in my patient. There were a number of adhesions between the pleurae, which I broke down with my fingers. I found the opening into the lung through which the abcess had opened into the pleural cavity. The abcess cavity was cleaned out with gauze by means of a long pair of dressing forceps, and I inserted drainage, using two soft, perforated rubber tubes and iodoform gauze. The patient could easily blow through this external opening and thereby force out large quantities of pus.

Almost immediately after the operation the patient began to improve, and in two weeks walked three miles to see me. The dropsical effusion in abdomen, legs and pelvis disappeared, strength and weight increased and in two months the wound had healed nicely and the patient was able to go to work.

I saw this case this year and he was in good condition and has no further trouble, except a slight tenderness at point where rib was cut.

NEPHRECTOMY PERFORMED FOR GUN-SHOT WOUND.

By J. McF. GASTON, A.M., M.D., Atlanta.

The history of this operation was considered interesting enough to detail before the nurses of the Presbyterian Hospital the day after the operation. Since the remarks I made then were taken down verbatim, they are given here as the best report of the case I can give. The operation was done March 7, 1905, only twelve hours after he was shot. He was supposed to be in a dying condition, and his testimony was taken in regard to the shot; but he has recovered entirely, the other kidney performing its function perfectly.

Nephrectomy is the removal of the kidney entirely, with ligation of the renal artery and vein. It is an operation that is not indicated except under rare circumstances —very difficult circumstances.

Nephrectomy consists of the delivery of the kidney first, such as we do in floating kidney, and then the ligation of the arteries and veins, the cutting off of the kidney and packing the wound with gauze. That, in brief, is what was done in this case.

There are two incisions, possibly three, that are used. One is the operation transperitoneally, that is the abdominal operation, going in from the front. That I will not deal with particularly, because it was not used here. There are two operations that may be done in the lumbar region. The incision in one case is immediately trans-

versely as to the kidney, and the other rather diagonally across from the tip of the twelfth vertebra or the tip of the floating rib, diagonally on a line, or parallel with the tenth rib.

The kidney, anatomically, is lodged in a space between the vertebral column on the inside and the ribs around it, having also muscular tissue of portions of the diaphragm, psoas, and lumbar quadrate behind, with a space bounding it below and above, which we have to traverse in making the operation. In the ordinary operation for floating kidney, there are very few difficulties. The floating kidney, as it name implies, is already loose in its attachments and movable, dropping down, very often, with other organs, as, for instance, the stomach. But in the case of a healthy man, wounded, as this man was, that is not the case. The kidney was thoroughly embedded, and held up above the ribs. This man is twenty-two years old. He had been shot about the ninth interspace in the mid-axillary line on the evening before I saw him. He was supposed to have been shot in a diagonal direction, the bullet ranging down toward the crest of the ilium. The diagnosis was made from the bloody condition of the urine, and from pain and tenderness in the lumbar region. To ascertain positively the character of it, we removed a portion with the catheter and found it still to be full of blood. This specimen was also examined microscopically by Dr. Ephraim Smith and fresh blood found. In a man suffering from other things, of course, we would have had to exclude disease. But in a man who was healthy and who had been shot, as this man was, there was no other diagnosis that could have been made. It was gun-shot wound of the kidney. The kidney was considered to be wounded, because the bullet was in a direction so as to wound the kidney, and we did not consider

that the ureter could be wounded, or the bladder, because they were not in the line of the wound, and not tender, either, and we considered the diagnosis plain. Therefore Dr. J. H. Green, of Decatur, who was his family physician; Dr. Lucius Orr, also of Decatur now, but then of the Tabernacle Infirmary, Atlanta, who had also been called in, and myself, consulted and determined that it was a case for operation immediately, without any use in waiting to bring him to the city, or any further examination.

We cut down at the incision I have mentioned and found, by palpation with the finger, the wound through the kidney, starting at the external portion, or center, and ending at the hilus. The kidney was so thoroughly embedded and encased that it was very difficult to remove.

The finger could grasp a portion right where the exit of the bullet had been, probably, and so, using that for a start, and pulling it until it was loosened from its attachments, I succeeded, after a great deal of effort, in detaching only half of the kidney. It was so wounded that this portion pulled off, leaving other portion of the kidney still attached. The renal artery and vein were in the first portion and were tied, but the ureter was left loose. There is no danger of a regurgitation of the urine from the bladder into the kidney, and neither was there any danger of regurgitation here of the urine into the open space left where the kidney had been; therefore, we left the ureter for nature to take care of, packing the kidney-space thoroughly with iodoform-gauze and putting in some stitches of silk in the external wound, simply to hold the iodoform-gauze there in contact with that portion of the wound, this being done when the other half of the kidney had been brought out. The man was put back to bed, in a rather uncertain condition. We did not

feel that the shock had been so very great, but the hemorrhage had been considerable and his condition was very precarious. However, I will say that you must remember that he was in health, not a sick man, and was able to stand more than a sick man could stand. By using bottles filled with hot water around him, he reacted. He spent a comparatively comfortable night, with two hypodermics of morphine, one of which had been given previous to the operation and one after. The next day he was given codeine. The patient had been visited by Dr. Green, Dr. Orr and myself. His temperature reached 100 degrees the day after the operation, and pulse about 100. I hoped for the best in this case, after he had gone over forty-eight hours since the operation, and I will say that this has been one of the few operations in the history of abdominal surgery, as mentioned by Greig Smith, so far as I can find, one of a half dozen operations done for this condition of the kidney. And two of the five I saw reported died. (Ashhurst's Surgery, page 965, extirpation of the kidney—nephrectomy.)

Table of cases of nephrectomy shows that out of 532, eight operations were for injury of kidney, or ureter; two deaths, six recoveries, a percentage of mortality of twenty-five. Two hundred and ninety-nine (299) cases tabulated by John Ashhurst, Jr., had a mortality of 24.4, but he makes no division into wounds, etc.

In eighty-four cases of operations on the kidney and ureter reported by George Emerson Brewer, of New York, one of six emergency operations was a nephrectomy for traumatism, and his experience leads him to believe that all conditions of this kind require operative interference, with exploration of kidney and ureter.

The mortality from nephrectomy is very great. It is done for a great many other things. Among other condi-

tions, we have very frequently suppuration going on from the kidney. Then nephrotomy or nephrectomy has been done. The danger from a kidney when wounded is that the blood may come down and clot in the bladder or ureter and cause retention of urine, with blood poison and urinary infiltration. We have therefore a condition which warrants an operation in all these cases, where the diagnosis is plain and where the other organs are not seriously involved. The organs in this case were not involved, so far as we could tell. The intestines had not been seriously injured. Forty-eight hours after the operation an action of his bowels showed an uninjured condition immediately after taking a dose of oil. The kidney on the other side was still acting well, and no blood found. It is altogether possible that some blood may be found after an operation, as the ureter is still open so as to permit it to come from the wound itself, and after the removal of packing there was blood in urine, but not afterwards.

Everything must be taken into consideration in determining upon an operation. For instance, there would be no use in cutting down and removing the kidney if, at the same time, some other organ, such as the pancreas or the stomach, had been seriously wounded, unless it was also repaired. A case of gun-shot wound is of great interest, because there is no telling when a patient may come in in just such a condition as this man was. He was a colored man, but his life was valuable to his own people and to himself; but how much more valuable would have been the life of a McKinley, a Garfield, a Lincoln, or a Stonewall Jackson, under similar circumstances. There are indications, therefore, for thorough operative measures and the most careful nursing. However, in this operation, we could not have a trained nurse. We had him there under unfavorable circumstances. He had his

home, but time was an element, and so he was put under the care and attention of his mother and wife, which has been very good. Under all the circumstances, he has gotten good attention. Not such attention as could have been given in a hospital, but I would say here that we must not wait for hospitals, or anything else, when life is at stake, and where the habits and condition of the patient are such that probably he would get along just as well at home, where he was accustomed to be, and where the atmosphere and the surroundings were such as not to infect and frighten him, and where he could see his loved ones. And it is found, in a great many cases, that there is a good deal of trouble from crowding of patients, especially negroes, in wards where they hear that so and so said this and that about them. In this case, probably this young negro man did not know but that all that was done was to remove the bullet, although we told him, before the operation that the kidney was involved. He wanted to know afterwards if we got the bullet, but the fact is, the bullet was not found. It had probably ranged downward, and there was a tract in the muscles through which the incision was made, showing where the bullet had found its way. In these cases, we know that the bullet is a dangerous thing, only if in contact with some nerve or some blood-vessel; that the bullet has done most of its work where it has traversed an important organ, and that the ravages done by the bullet being repaired, the man can get well without the removal of the bullet.

We hoped in this case that the man would soon recover, as he did. However, the prognosis should be very guarded in all these cases. The mortality, under the best surgeons, has been two out of five in wounds, and ordinary nephrectomy 50 per cent., by Greig Smith in ear-

lier edition. The lumbar operations, however, have given better results and the statistics show that the mortality here has not been over 40 per cent. You understand that where the peritoneum has been traversed, there is always more danger, but in cases where the lumbar incision has been made for any cause, whether for floating kidney or otherwise, the muscles can be opened up safely, and the fibers can be turned aside. I found it absolutely necessary to cut the muscles only at the last point, and the incision was five inches in length.

There have been cases where abscesses have formed in the wake of wounds of the kidney similar to this, when no operation was performed, and these abscesses were the result of suppuration which came about by urinary infiltration. There have been some cases which have recovered without operations, where the kidney was examined post-mortem, and found to have healed. They are, however, very few. There are a great many cases, where an autopsy was held, where a diagnosis of wound of the kidney was not made beforehand, but was seriously wounded by the bullet. Brewer's case only a slight hemorrhage existed to warn him.

There have been some natural cures well authenticated. They do not warrant the assertion that these cases are safe without operation. They are only the exceptions that prove the rule. There is one case mentioned in Ashhurst's International Ency. of Surgery where a certain amount of cicatricial tissue only remained. That kidney was useless. It really atrophied and was not doing the purpose. Nature had formed a barrier, such as is done by nephrectomy, to the normal function of the kidney. Urine of that kidney would have been poison.

I have given you briefly some of the main points about an operation for nephrectomy for gun-shot wounds, where

the indications were clear and well-defined for an operation. I will state that that does not mean that every case where blood in the urine is found, in gun-shot wounds, should be operated upon. Each case is a law unto itself, and has to be carefully and prayerfully considered.

A SIMPLE AND EFFICIENT TREATMENT OF EMPYEMA OF THE CHEST.

By J. H. HAMMOND, M.D., LaFayette.

The procedure here recommended consists in making an incision through a suitable intercostal space at a point where the hypodermatic syringe shows no adhesions to exist, using local anesthesia, and as soon as matter ceases to flow inserting a piece of sterile rubber tubing, as large as practicable, and about five or six inches in length. The tube should have openings for drainage, but care should be taken to have none at or near the surface. Once a day for a variable length of time, usually several weeks, a longer piece of tubing, say twelve inches in length, is connected with that inserted in the side through the medium of a short glass tube, leaving a part of the latter exposed to show the character of the discharge, and by reverse action of a glass syringe applied to the free end of the rubber tubing, alternately removing the syringe to discharge its contents and clamping the tube to prevent backward flow into the chest, completely remove from the side all matter and gas contained within the pleural cavity. After each dressing of this kind the attached piece of tubing should be removed, and, with the syringe, thoroughly cleaned. The drainage-tube may be plugged during the intervals to prevent the ugly sound of air entering during respiration, but especially that the lung may not be allowed again to collapse into the upper part of the chest on account of the air entering beneath it. Fre-

quently, however, it will be found necessary to remove the plug and permit the air to enter in order to relieve the intense pain caused by the great strain on adhesions, which can not, without too much suffering, be so quickly broken up. Occasionally the tube may be removed and cleaned, or replaced with a fresh piece. No fluids of any kind should be thrown into the pleural cavity. After a few weeks, or months in some cases, the dressing may be made less frequent until the discharge ceases. But a sudden elevation of temperature at any time will generally be an indication for drainage, and when this has been secured the fever will quickly subside.

The simplicity of this operation commends it to a very large class of practitioners. We believe that in the country some cases of purulent pleurisy are lost, because the operation for their relief appears formidable. As a matter of fact, as here described, it is entirely free from difficulty, there is far less danger than is met with in the opening of many abscesses, the instruments and appliances required are such as any practitioner generally has with him every day, and so uncomplicated is it that any one may perform the operation, if necessary, even without assistance. The treatment is very tedious, demanding a great deal of patience, and if the practitioner can not give reasonable attention to his patient better results might be obtained by giving the pus freer vent or by making a counter opening. Generally a nurse can be found who, with a little training, can do daily dressing efficiently.

With proper attention, the efficiency of the treatment is as satisfactory as its simplicity. Not depending on gravity for the evacuation of the matter, it is less imperative that the opening should be in the most dependent part of the pus cavity; that which gravitates below the opening is drawn by suction to the tube and discharged.

The greatest advantage, however, which this method possesses over that with a larger opening including section of a rib, consists in withdrawing the gas as well as the matter from the cavity of the pleura. The integrity of the ribs being preserved, the chest-wall can better resist the tendency to collapse into the vacuum created, into which the lung is thus forced to descend, at the same time freeing itself from adhesions and assuring a better preservation of the original capacity of the pleural space. When convalescence is complete after this treatment we believe that there is not so apt to be curving of the body to one side, that the local deformity will not be so marked, and that the function of the lung will be less impaired.

A few cases treated in this way, though very tedious, have made most satisfactory recoveries.

CORNEAL ABSCISSION—A REPORT OF FORTY-ONE OPERATIONS.

By J. M. CRAWFORD, M.D., Atlanta.

The object of this paper is to bring before you a subject with which the majority of you are more or less familiar, in print at least. I do not promise to throw any new light on the subject, but simply to give my personal experience, with the hope thereof of influencing some among you to lay aside prejudice and give to your patients the great benefit to be derived from this old and simple operation.

I say "old operation," since we find it spoken of more than one hundred and fifty years ago. Its revival was accomplished some thirty-five years ago by Critchett, of London, and later was modified by Knapp, of New York.

OPERATIVE PROCEDURE.

The operation, as you are aware, consists of the removal of the front portion of the ball together with the ciliary bodies and crystalline lens. The patient should be given chloroform or ether, as a local anesthetic is not sufficient. Personally, as I have stated on former occasions, I prefer the administration of chloroform because the psychic shock is much less and the after-effects better.

The primary operation of this kind was made by simply cutting off the anterior portion of the ball, leaving a stump formed by the sclera with the muscles attached. No stitches were taken to prevent the escape of the vit-

reous humor, and, strange though it may seem, this method was found to be better, in many instances, than enucleation.

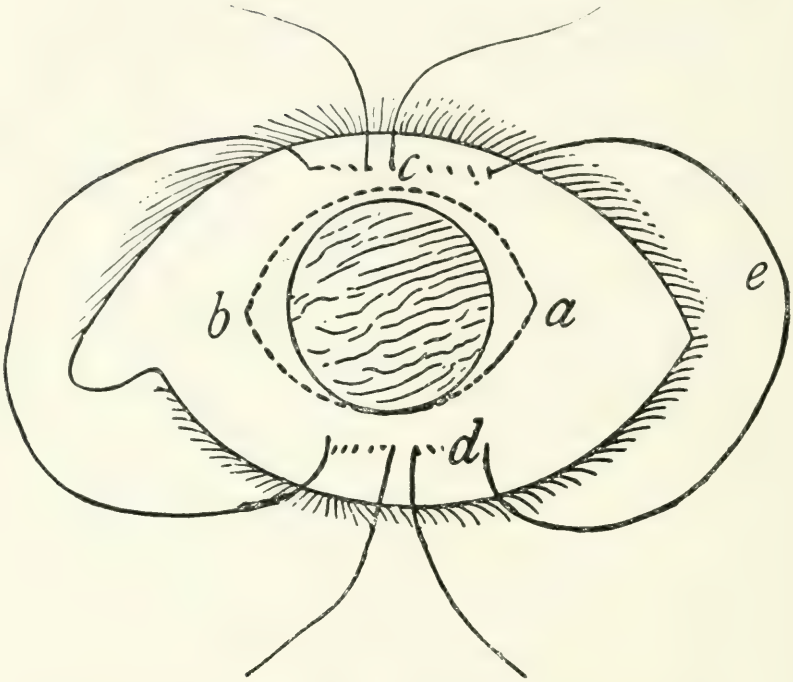
Critchett's operation.

George Critchett later improved on this method by inserting three or four curved needles threaded with silk through the ball from above downward, a little behind the ciliary bodies, after which he cut off the anterior portion of the ball in front of his needles, leaving a small margin of sclera through which he drew his needles. The scleral edges were brought together by means of these silk sutures, which were tied. The sutures were allowed to remain for six or eight days and were then removed.

Knapp's operation.

Knapp modified this operation by eliminating the curved needles and thread, closing the wound by external sutures, thus changing a very tedious operation into a simple one.

With the help of this cut I will endeavor to point out to you the successive steps in the operative procedure as I have practiced it. From the upper end of the vertical meridian (c), about four millimeters temporally, a curved needle is passed through the conjunctiva and the outer layers of the sclerotic, drawn out and introduced below the cornea at this point (d), passing through the conjunctiva and outer layers of the sclerotic in the same way as above the cornea, only in the opposite direction—nasally instead of temporally—and reappearing at the lower portion of the vertical meridian. The needle is removed and you have a loop (e) and the two ends of the thread resting on the temple. This process is repeated on the nasal side. The sutures being placed, you proceed to cut away that portion of the ball lying in front of them (a b), care being taken not to cut the threads and thereby



delay the operation. The first steps after the abscission is to let the ends out and tie the sutures. The ends of the temporal thread are drawn toward the nose, making of the loop a straight line and thus drawing the upper and lower edges of the temporal side of the wound together. The process is repeated on the nasal side, and when the sutures are tied, the wound has a puckered appearance similar to a pouch. The eye is then bandaged and the patient kept in bed until the wound heals, which it does speedily.

EVIDENCE.

As I have intimated in the beginning of this article, there is some prejudice in regard to this operation. The

objection has been urged that the operation is frequently followed by sympathetic ophthalmia. I will say just here that I have within the last ten years made forty-one of these operations with entirely satisfactory results, except in one instance, when a case of cyclitis developed. You may judge for yourselves, from the appearance of these few patients whom I present to you, what the cosmetic effect is of such an operation where a natural stump is left on which to operate an artificial eye. You will see how easily and naturally the artificial eye moves in unison with the natural eye.

Having in mind the prejudice of some of my honored colleagues and the specific objection (sympathetic ophthalmia), I wrote to some of the leading oculists of this country asking them to answer certain questions, to which I received speedy and courteous replies. The questions were as follows:

Do you ever resort to Critchett's operation?

Has the operation pleased you in its results?

What, if any, bad results have you had to follow the operation?

Have you seen or known of a case of sympathetic ophthalmia resulting from the operation?

Do you make the Mules' operation instead?

Why?

Do you prefer enucleation to the Mules' or the Critchett?

The answers to these interrogations I have endeavored to condense into tabular form, as follows:

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
Arnold Knapp		None	Prefer the Critchett to the Mules operation.
William Campbell Posey	Great many	Irritation from the wearing of an artificial eye.	Considers that the Mules operation is preferable to the Critchett in any case save those of anterior staphyloma without signs of disease of the remaining portions of the eye.
L. Webster Fox	Over two hundred	Sympathetic ophthalmia in a few cases.	"After performing over two hundred Mules operations," he remarks, "I substituted the 'immediate implantation.' In a few cases sympathetic ophthalmia had followed the operation, but in the 'immediate implantation' such a condition can not take place."
F. M. Chisolm			Prefers the enucleation operation as being more satisfactory in the end, and with the cosmetic result just as good as with the other operation.
Louis F. Love			Never performed the Critchett operation. Makes the Mules or enucleation. When not contra-indicated considers Mules operation the best — obtaining much the best socket.
William F. Mittendorf			Prefers enucleation to either the Mules or the Critchett operation.

SURGEON.	NUMBER OF OPERATIONS	COMPLICATIONS	REMARKS.
George Huston Bell			Prefers enucleation to any of the substitutes.
Samuel Theobald.	Many	None	Prefers enucleation to the Mules or the Critchett operation. Considers Knapp's operation indicated in children when there is evidence that the deeper structures of the eye are not diseased as in staphyloma from ophthalmic neonatorum.
D. Webster	....	Panophthalmitis immediately following Critchett operation.	Has never seen a case of sympathetic ophthalmia following the Critchett operation, but thinks the Mules operation affords more certain immunity from such an operation. Thinks enucleation indicated in cases of intra ocular tumors, phthisis bulbi, and c.
Edward E. Gibbons		None.	Prefers the Mules over the Critchett operation, "because there is less possibility of sympathetic ophthalmitis following, and you get a better supporting stump for the prothesis." Since the introduction of reform eyes, prefers enucleation to either Mules or Critchett operations.
Charles Stedman Bell		None.	Prefers enucleation.

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
Francis Valk....		None..	Likes the Critchett better than the Mules operation, but prefers enucleation by the Snell operation which he says gives excellent results with no danger of any complication in the future.
S. D. Risley....		Panophthalmitis — failure of the wound to close followed by shrinkage of the stump.	Favors the Mules operation where there is a threatened secondary or migratory ophthalmia or sympathetic irritation. Thinks it safer than to leave the *uveal tract* within the scleral cup in the majority of eyes with a corneal staphyloma. In some eyes, such as old shrunken balls, suppurative cases, enucleation is indicated.
Thos. R. Pooley..		Sympathetic ophthalmia..	Favors Knapp's modification but prefers enucleation to either the Critchett or the Mules operation.
George L. de Schweinitz		No experience of sympathetic trouble following abscission by any of the methods in his own practice, but sufficient sympathetic irritation in the other eye to justify enucleation in cases that	Favors enucleation and has no preference among the various substitutes for it. Has not done the Critchett operation, but has sometimes done what is equivalent of Pana's operation of complete keratectomy.

SURGEON.	NUMBER OF OPERATIONS	COMPLICATIONS.	REMARKS.
		have come under his care from other sources.	
John E. Weeks.			In the greater number of cases prefers enucleation — in selected cases the Mules operation, because the result in regard to the stump secured and danger of sympathetic ophthalmia appears to him to be more promising. Objects to the Critchett method because of the danger incurred by the operation involving the ciliary region.

In answer to my letter, G. E. de Schweinitz, of Philadelphia, kindly sent me a copy of his paper which he read at the Thirteenth International Congress of Medicine at Paris in 1900.

In this paper twenty-eight operators give evidence in regard to abscission, sixteen of them recording one hundred and eighty-six cases, while twelve do not state the number of their operations.

Out of the mass of evidence Dr. de Schweinitz deduces the following: "Sympathetic inflammation after abscission must be uncommon, although, from the character of the operation, it might be expected. The English committee reports only three cases, and I have secured only one positive expression of opinion upon this complication, and that is from Dr. Richard Derby, of New York, who says: 'My experience has led me to regard the operation of abscission as an unsafe surgical procedure, and one that both in my hands and in the hands of other surgeons has been followed by sympathetic ophthalmitis.' No particulars are given."

Out of twenty-eight operators and one hundred and eighty-six operations of abscission, one operator seriously objects to the procedure, and the English committee reports three cases of sympathetic ophthalmia. Not a very large percentage I take it.

From the following table, which I take the liberty to quote from De Schweinitz's paper, you will readily see that my position of favoring abscission is not an isolated one, but that the position taken by me and the good results are alike shown by many.

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
S. C. Ayers	Many	Once hemorrhage; kind healing the rule.	Indicated in cases of staphyloma of cornea. Contraindicated in ciliary staphyloma, liquefaction of vitreous, and sensitive globes.
S. M. Burnett	A number	No serious ones	Indicated in corneal staphyloma, but not advisable if there has been much cyclitis and the ciliary region is extensively involved.
R. Derby		Has sympathetic ophthalmitis.	Considers operation an unsafe surgical procedure.
J. C. Dunlavy	Three	Slight reaction	Indicated for staphyloma of cornea.
A. B. Hale	One		Operation for cosmetic reasons; no prothesis afterward.
H. F. Hansell	Great many		Suited to cases in which there is disease limited to the anterior portion of the eyeball.
G. C. Harlan	Large number	No serious ones	Indicated when disease or deformity is confined to anterior segment of eyeball; contraindicated in inflamed or shrunken eyeballs or suppuration of choroid.
L. Howe	One	Irritable stump	Indicated in extreme staphyloma.

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
E. E. Jack		Commonly excessive reaction.	Uses Critchett's operation, but prefers evisceration.
H. Knapp	Many	Late irritability of stump, 7 to 15 years after operation by ossification.	Has performed this operation by his method in staphyloma and megalophthalmos, but eyes must be free from inflammatory irritation.
Manhattan Eye and Ear Infirmary	Seventy-two		These operations done from 1881 to 1889; no particulars; probably mostly from staphyloma.
W. O. Moore	Twenty-eight	Imperfect healing of wound and moderate reaction.	Indicated in anterior staphyloma of cornea, especially of children; in all other cases prefers enucleation.
H. D. Noyes			Suitable for total staphyloma; sutures sclera and conjunctiva separately.
T. R. Pooley	Good many		Indicated in complete staphyloma of cornea, but contra-indicated when there is iridocyclitis.
S. D. Risley	Two	Loss of food vitreous, causing shrinking of globe.	Indicated in corneal staphyloma, but prefers Mules' operation.

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
D. B. St. J. Roosa			Performs kerectomy or abscission in noninflamed stapathylomatous eyes.
J. A Spaulding	Eight		Indicated in cases of large or small staphyloma of cornea, or when cornea is totally or more than half leukomatous.
G. H. Suker	Two	Sympathetic irritation and irritable stump.	Objects to the operation, except possibly in the anterior staphyloma of infants.
J. O. Tansley	Twenty	None serious; occasional slow healing.	Chiefly indicated when there is not too greatly diseased condition in childhood.
S. Theobald	A number		Staphylomatous eyes in children indicate the operation; Critchett's or de Wecker's operation preferred.
J. L. Thompson	Many		Special technic of his own; 60 per cent. of success in primary healing of wound.
D. Webster	Twelve	Severe hemorrhage once	Indicated in total staphyloma of cornea; contraindicated in sympathetic ophthalmitis, bony or chalky vitreous, neoplasms, etc.
J. E. Weeks	Four	Slow healing of wound.	Indicated in total staphyloma with absence of inflammation; not to be used if pathologic process extends deep into globe.

SURGEON.	NUMBER OF OPERATIONS.	COMPLICATIONS.	REMARKS.
C. A. Wood	Twelve	Once slow closing of wound and shrinking of globe.	Indicated in progressive corneal and ciliocorneal staphyloma, and where remainder of globe is normal or nearly normal.
H. Woods	Two	None of special note.	Operation done for staphyloma following ophthalmia neonatorum.
W. V. Wurdemann	Twelve		Useful in staphyloma of cornea without disease of posterior portion of globe; otherwise contraindicated.
M. W. Zimmerman	Three	No serious ones	Indicated in large anterior staphyloma in young children.
H. B. Chandler	Four		Indicated in corneal staphyloma of children.

WHEN INDICATED.

Of course the operation must be limited to certain diseased conditions of the eye, and is especially indicated in cases of staphyloma of the cornea.

Eyes in which suppuration has begun may be abscised without danger, unless the process has involved the surrounding orbital tissues, or already begun to extend posteriorly so that an aseptic socket would be difficult to obtain.

Staphylomatous eyeballs in children, when not inflamed, may be treated by the operation of abscission or keratectomy, though it is possible in after-years for the stump to undergo calcareous or osseous change, which may cause sympathetic irritation in the other eye and require enucleation. Such cases I have never seen.

CONTRA-INDICATED.

Eyes so diseased or injured that they have already excited sympathetic ophthalmitis, or eyes containing malignant growths, should be enucleated. I do not favor evisceration, having made the operation but a few times.

Shrunken eyes (excessive phthisis bulbi) should be enucleated.

When a patient is very old or feeble, enucleation is preferable to abscission.

I take it, however, that the field for the operation has been too limited. This operation can often be made to a great advantage to the life of a patient where it is made for the cosmetic effect. Take the case, for instance, of a young business man or a young girl growing up with a blind eye, with a white cornea that attracts attention. In these instances you afford a great deal of comfort to your patients by making this operation and inserting an artificial eye that moves with its fellow eye, and at the same

time you do not, as many have thought, endanger the good eye with sympathetic ophthalmia. I have never made Mules' operation, since it did not appeal to me. I had rather have a stump made from the natural vitreous humor than one made by the introduction of a glass or silver ball, since these balls often come out, and also since we have cases on record where sympathetic ophthalmia has been caused by this (Mules') operation.

SOME POINTS OUT OF MY OWN EXPERIENCE IN REFRACTION AND THE FITTING OF GLASSES.

By ROSS P. COX, M.D., Rome.

The important role that glasses play in the care of eye troubles is illustrated by the fact that sixty to eighty per cent. of all eye patients require the fitting of proper lenses.

When we recall that the wearing of glasses is an incident certain to befall every individual that lives beyond middle life, their timely and proper adjustment becomes a subject of special interest and importance.

It is my faith that no case should receive any glass at all unless the need is sufficient to warrant the best lens, fitted in the best possible manner.

I think the loose and hasty prescribing of "resting-glasses," "strengthening-glasses," and the like, on vague and insufficient grounds, is unscientific.

The vast output of bad refraction is harmful, not only by entailing bootless expense, but also, in addition to direct injury it may do, it is apt to block the way to good work and relief.

I believe that inexact refraction is much commoner in Europe than in our own country.

Prof. Fuchs, of Vienna, once stated to me that, in his opinion, the benefit of fine refracting, so much practiced in America, was due chiefly to suggestion. My under-

standing was that he considered most lenses of less than three-quarters of a diopter a refinement of doubtful utility.

Certain it is that much of the refraction of continental Europe done often upon children, without the aid of any cycloplegic, would be considered crude and imperfect by many American refractionists, and particularly so by the Philadelphia school, which, I think, preeminently cultivates a nice precision in these matters.

The pith of the matter, it seems, is a fine discrimination as to the kind of work an eye must do. Imperfections that are negligible in an ox-cart wheel would mean swift destruction, if allowed in the wheel of an express engine.

The last thousand consecutive cases for whom I have prescribed glasses form the basis of this paper. The ages of these patients range from four to ninety years. The average age is 33.1 years.

Forty-four per cent. of these cases were refracted under atropine, homatropine was used for 15 per cent., and no cycloplegic was used for the remaining 41 per cent.

As to the use of cycloplegics, it has been my rule, practically without exceptions, to refuse to give glasses to children under fifteen years of age, unless I was first allowed to place the eyes under the full effect of atropine. From the ages of fifteen to forty I still prefer atropine in all difficult or complicated cases, but am content with homatropine in the great majority of cases. Within this last limit, especially if the patient is above thirty-five years of age and there are no evident complications, after using all available helps, and often, after tests repeated on different days, I sometimes consent to dispense with a cycloplegic, but usually under protest and after disclaiming all responsibility for results.

From the age of forty to fifty I still urge the use of homatropine in selected cases, and the results have been

so satisfactory that I am strongly encouraged to extend the use of homatropine at this rather advanced age. I follow those who conclude these cases with a weak solution of eserine. Occasionally I have to resort to atropine after having failed with homatropine, but never in persons over forty years of age.

By far the most frequent error, slightly exceeding 53 per cent. of all the cases, was compound hypermetropic astigmatism. One fourth of these had astigmatism in one eye only.

Next, in point of frequency, came simple hypermetropia, with 21 per cent.

Included with these is the, to me, astonishingly small number of cases of uncomplicated presbyopia. These amounted to about one-quarter of one per cent., being only 28 in the 1,000.

Next came simple far-sighted astigmatism, with 9 4-10 per cent. This makes 84 per cent. in which the sole error was some kind of hypermetropia.

Five per cent. had mixed astigmatism. One and seven-tenths per cent. were far-sighted in one eye and near-sighted in the other.

Thus we find that hypermetropia was a factor in over nine hundred of the cases.

Simple myopia was the error in only 1 per cent., compound myopic astigmatism in 6.15 per cent., and simple myopic astigmatism in just 2 per cent. of the cases.

There were more than nine times as many far-sighted as there were near-sighted cases.

This is a much smaller proportion of myopia than I have ever seen in any table of comparison. In many parts of Europe, as, for instance, at Copenhagen, 8 per cent. or more of the entire population are near-sighted. (Noyes.)

In Germany forty to sixty per cent. of the pupils in many of the upper grades are myopic.

Randall gives a table of 72,565 ametropes, of which 50 per cent. are hypermetropic and 44 per cent. myopic. In contrast to his 44 to 50, my results show 5½ to 50. The myopia cases, however, obey the usual age rule.

Taking the age periods of eight years and under, from eight to twelve years, from twelve to sixteen years, and from sixteen to twenty years, the number of myopes were respectively 2, 6, 9 and 25.

The number of pupils with myopia in the nine grades of the Rome public schools is below 15 per cent., and I believe considerably below it.

Now we know that wild and domestic animals, savages, half-civilized people and babies are far-sighted, while highly-civilized communities are supposed to yield a high per cent. of myopia.

A professor in Vienna who had three diopters of near-sight assured me that he considered this a great advantage. He could work indefinitely without strain to his accommodation, got finer images and was freed from the necessity of presbyopic glasses.

On the other hand, he must use lenses all his life to secure any of the manifold practical advantages of far-sight, not to mention the enchantment that distance lends to the view.

Moreover, Donders, who ought to know, says that the myopic eye is a sick eye, nor must we lose sight of that tendency it has to get progressively sicker.

However advantageous it may be in some communities to limit the view to the end of one's nose, the conditions are quite different in homes that nestle among the foothills of the Blue Ridge, on the banks of the "beautiful winding Etowah."

There is also a growing impression that near-sight stands more for children that go to school without break-

fast or lead the unwholesome life of large cities, and also for the broad, flat German face, than it does for culture. My own community, which shows far-sight to be the sole factor in 84 per cent. and a factor in 90 per cent. of a thousand consecutive cases of ametropia, is especially well-equipped with high-graded public-schools, high-schools and colleges. It must be the wise administration of these and the superior conditions for health generally that has so effectually kept down the development of myopia.

Seventy-seven per cent. of the one thousand patients had astigmatism in one or both eyes that required correction. Just another 77 per cent. took a lens in one eye that differed in strength or axis from that of the other eye.

While 240 of the cases were forty-five years of age or over, only twenty-eight had uncomplicated presbyopia.

These last three statements show the utter stupidity and folly of allowing ignorant, rule-of-thumb refractionists, whether they be strolling spectacle venders, druggists or jewelers, to abuse the most delicate, complicated and important of all the special sense organs.

Let us consider well the actual state of things. Here are one thousand consecutive cases that require the help of lenses. Their average age is 33.10 years, an age when the accommodation has yet a range of six full diopters; 77 in every 100 have astigmatism that needs correction; 77 in every 100 must have a lens in the right eye that differs from the one in the left; all but 28 out of 240 presbyopes have their presbyopia complicated with some other error of refraction.

What chance has even a three-months graduate in refraction to do justice to such an array of complications?

What equipment fits one for this work?

The task of refracting properly is so intimately and inseparably bound up with such a variety of medical and surgical problems that, as the days go by, I am more and more convinced that none but physicians should undertake this work, and the more physician a man is the better refractionist he will be.

How often it happens to the oculist to make the first diagnosis of Bright's disease, diabetes, syphilis, scleroses, brain-lesions, glaucoma, cataract, and numerous other local and general diseases.

Eye-strain itself, with its protean symptomatology, is just beginning to be properly studied and appreciated. Ranney, Gould and their followers may be extremists, but a powerfully active radicalism is needed to move a heavy, often stupid, conservatism toward the golden mean of truth.

There is a point in refraction that I feel sure has not received the attention that it merits. In connection with the treatment of astigmatism against the rule, I noticed it and practiced it for nearly ten years before I ever saw or heard of any reference to it by another, when I saw some discussion of it last year by Dr. Steele, of Chattanooga, in a local journal.

The point is that light, passing obliquely through a spherical lens, is acted upon as if a cylindrical lens of the same variety as the spherical had been added, with its axis parallel to the axis on which the spherical is tilted, the cylindrical effect, of course, varying in degree according to the strength of the spherical and the amount of tilting. The practical effect is, for instance, that a presbyope who has normal distant vision with S plus 1.00 D on C plus 1.00 D ax 180°, will, in the ordinary bifocal lens, reject part or all of this cylinder for near work, according to the strength and obliquity of the reading-lens. He will ac-

cept all of the cylinder only when the axis of vision is perpendicular to the plane of the lens. As this is rarely the case in the ordinary bifocal glasses, it becomes a point of great practical importance.

Of course it makes no difference whether there is astigmatism against the rule or not. We must get the axis of vision perpendicular to the plane of the lens, in any case, or make allowance for the cylindrical effect of a tilted lens.

The deep periscopic lens is very nearly a solution of the mechanical difficulties of these cases. Unfortunately, however, as my optician informs me, the deep periscopic bifocal is practical only with the cemented segment, which, during the hot summers of this latitude, is very apt to cloud or scale off.

Another practical point that I have never seen mentioned in a text-book or journal is that a cylindrical lens, set in a test-frame, in front or behind a strong spherical, such as is used in aphakia, gives a result that is respectively too strong or too weak, when the identical cylindrical is ground in the same lens with the spherical.

In ordinary cases of aphakia, if the test is made with the cylinder in front of the spherical, the cylinder of the finished lens will be from .50 D to 1.00 D too strong.

In other words, when dealing with strong lenses, where a cylinder is combined with a sphere, the distance between the two lenses in the test-frame is not a negligible quantity.

I have thought to solve this difficulty by placing the sphere in the place where it is to be worn and then testing with the cylinders, first in front and then behind the sphere, finding the sum of the cylinders giving best vision in the two positions, dividing this by two and ordering the quotient as the approximately correct cylinder.

IS BILATERAL OPERATION FOR CATARACT EVER JUSTIFIABLE? AND IF NOT, HOW SOON AFTER THE OPERATION ON THE FIRST EYE IS IT SAFE TO EXTRACT THE SECOND CATARACT?

By A. W. CALHOUN, M.D., Atlanta.

An exhaustive review of text-books, medical journals, special periodicals and pamphlets revealed a total lack of literature bearing on this subject, and a letter of inquiry, sent to forty-one competent and experienced oculists in different sections of the country showed the greatest diversity of opinion; about an equal number being on each side of the question.

This paper, therefore, is largely based on a personal and clinical experience of more than fifteen hundred cataract operations.

I can conceive of no circumstances that would justify me in making bilateral extraction of cataract. There are so many sources of infection and so many opportunities for it, that we can never be sure that an eye will not be infected during or after an operation, however careful we may have been in our work, or however perfect the patient's local, mental or physical condition may have been. The difficulty of cleansing the conjunctival sac is well-known. Indeed, the assertion has been made that the sac can not be made aseptic.

The intimate connection, through the lachrymal canal, between the nasal mucous membranes and the conjunc-

tiva, renders the latter peculiarly susceptible to all the irritations and inflammations of the former, and every operator must recall to mind cases of infection traceable to this source. Regardless of the great advance made in the operation for cataract and its after-treatment, in spite of every precaution, suppuration occasionally occurs, and will continue to occur. A distinguished surgeon recently stated to me that he had seen suppuration occur thirty days after a seemingly successful extraction.

More frequently an iritis springs up, not necessarily fatal to the eye, but most distressing to the patient, and equally discouraging to the surgeon. Unexpectedly and without apparent cause, an anomaly in the healing process sometimes becomes a menace to the eye after extraction, adding another danger as to infection, and this would necessarily interfere with the normal process of healing in the fellow eye. I have had cases take not only days, but weeks, for the thorough healing of the corneal wound, there being all the while slight, gradually diminishing seeping of the aqueous through the wound. Some remote or hidden constitutional weakness was no doubt the cause of this. Such a case is a decided disturber of the surgeon's peace of mind, and would be suggestive of grave disaster in a case of double operation for cataract. Therefore the possibility of infection alone should cause the too enthusiastic surgeon to pause and seriously consider before proceeding to the bilateral extraction.

How absolutely helpless a patient must feel, with both eyes operated on at the same time; and if a severe form of iritis or other serious inflammation should set up in one or both eyes, there would certainly be great mental depression; and a cheerful and hopeful spirit is a mighty force in aiding recovery from any ailment.

A certain amount of experience, arising from the patient's peculiarities and from possible complications, is always gained by making the single operation, whether the results be good or bad, and the use of this knowledge would surely be a valuable guide, and increase the chance of success on the second eye. Not infrequently it has happened to the most experienced and competent oculist that an eye has been lost after extraction through inflammation or other mishap—whereas later on, guided by his first experience, the other eye has been operated on by the same surgeon with perfect success. Now and then it happens that an eye lost through violent inflammation following a cataract operation, requires to be enucleated because of the sympathetic irritation, before we dare proceed with the operation on the other eye. It is easy to predict what would have happened to the fellow eye had bilateral extraction been performed in such an instance. In this connection I would say that sympathetic ophthalmia is not a frequent but a distinct element of danger to be reckoned with in considering the double cataract operation.

Accidents and the patient's disturbed mental condition following cataract extraction are contraindications to the bilateral operation. The unmanageable patient tossing from side to side of the bed, displacing his bandage, striking the eye with his hand, springing suddenly up in bed and by a strain disturbing the corneal wound, coughing, sneezing, etc., are actual occurrences in the hands of every experienced operator.

I once had a patient, who from a violent fit of coughing, sneezing and vomiting, had a profuse intraocular hemorrhage with complete emptying of the contents of the ball. If one could be happy under such circumstances, I was reasonably so, when I reflected that the

other eye had not been touched. Loss of the vitreous, hemorrhage, panophthalmitis following accidents, glaucoma and possible sympathetic inflammation, with infection from many sources, constitute a chapter of possible accidents with such dreadful results that I feel warranted in asserting that it would be unwise and unjustifiable to extract both cataracts at the same time.

Mental disturbances after cataract operations are of sufficient frequency to cause the surgeon some concern. Occasionally, after several days of confinement with both eyes bandaged, the patient becomes melancholy, has hallucinations and, in rare instances, becomes violent and ungovernable. This condition generally passes rapidly away on uncovering the other eye, even though this is practically blind, and getting the patient into the fresh air. One such patient threw himself through a window, carrying sash and glass with him, while in this temporarily perturbed mental state. Another, who had been a sleep-walker in his boyhood days, eluded his attendant and climbing through a second-story window, leaped to the ground below. Again, I would say, there is some comfort in such cases, when we consider that only one eye has been operated on.

On one occasion Mr. Nettleship, a surgeon of vast experience, after having extracted one cataract under general anesthesia, turned to his class and remarked: "Now, gentlemen, what a temptation the opportunity presents to extract the other. But, gentlemen, never do so, until your patient has fully recovered from the first operation."

Looking at it from every point of view, to my mind, the extraction of cataract is one of the most important of all surgical operations, the whole future of the patient depending on its successful outcome. Answering from

the standpoint of the patient, would one of us willingly submit to the bilateral extraction? I would myself unhesitatingly cry out "No!"

The second part of my subject is quickly answered. "How soon after the operation on the first eye is it safe to extract the second cataract?"

There are competent surgeons who maintain that it is not wise to operate on the second eye at all, if good results follow the first operation. There are good reasons for this conclusion. The frequent disturbance of muscular equilibrium, the confusion due to unequal vision in the two eyes, constitute reasonable grounds for advising against the second operation, provided the first has been a success.

My rule, however, is to operate on the second eye if the patient desires it, but I do not urge the operation. Circumstances should always guide us in selecting the time for the second operation, but except for some special reason, I prefer to wait six or eight weeks, when the first eye has recovered from all reaction, and the general health of the patient has been thoroughly restored. There can be no rule; each case must be its own law, but I am convinced of the fact that in ignoring the patient's desire for haste, we are but adding to his chances of successful results.

LACHRYMAL STENOSIS IN INFANTS AND ITS TREATMENT.

By DUNBAR ROY, M.D., Atlanta.

If one will examine the various text-books on ophthalmology, he will be unable to find any reference to the subject of the treatment of lachrymal stenosis in infants. The conclusion therefore derived is, that such a condition in infants is treated in the same manner as in adults. This I consider erroneous teaching. Very grave injury would frequently be done to the lachrymal passages of these tender little individuals if the same ruthless probing and cutting were done as is frequently the case among adults. During the last four years of my practice I have had eight cases of lachrymal stenosis in infants, all of which recovered perfectly without instrumental interference, and one case presented some such striking features, whether as a coincident or as a casual relationship I do not know, that I shall take the liberty of referring to it more in detail. In speaking of lachrymal stenosis in infants we must naturally do so in a very indefinite manner, not knowing whether the stenosis is in the puncta lachrymalia, the canaliculi, lachrymal sac or in the duct proper. This could only be determined by delicate probing or post-mortem demonstrations, both which methods being often impracticable. When we speak of lachrymal stenosis in infants we naturally mean such cases as present the usual accompanying symptoms of excess of tears in the conjunctival sac or even flowing out upon the

cheek, some excoriations of the lower lid, and some slight catarrhal condition of the palpebral conjunctiva. There need not have been previously a dacryocystitis, either acute or chronic.

The well-known fact that the mucous membrane in infants is so susceptible to swellings and edematous conditions will in a great measure account for the stenosis occurring in individuals of this age. Yet such pathologic conditions do not constitute the whole etiologic factor in these cases.

For convenience I have made the following groupings of lachrymal stenosis occurring in infants:

1. Stenosis due to Congenital Malformations and Non-development in some Portions of the Lachrymal Passages.—Cases of congenital malformation in some portion of the lachrymal passages have been reported by several observers, and in the presence of such must not be ignored, when cases of epiphora in infants are brought to us for treatment. Congenital absence of one or more puncta lachrymalia have been noted by various writers.

Benjamin Travers, as early as 1824, says in his book on "Diseases of the Eye," that he had seen a congenital deficiency of the puncta, but the case was very rare, obliteration being much less so. Schon, in 1828, noted the fact that puncta had been observed closed entirely in newborn infants, and cites two or three authors who mention the condition or had seen cases. V. Walther states that congenital atresia of the puncta does not occur except in connection with monopsia or micropsia; and Desmarres states that Seiler, Schoen, Carron and others have noted congenital atresia of the puncta mostly in connection with concomitant absence of the eye. The congenital absence, however, of these puncta have been observed by others, who make no mention of any other congenital defect.

Mooren, in a statistics of 108,416 patients, gives only one instance of "defectus punctorum lachrymalium."

In our own country, a case has been reported by Burnett where there was congenital absence of both puncta lachrymalia of the left eye and of the lower punctum of the right eye. The case terminated successfully under operation. Theobald has also reported a case of congenital atresia of one lower punctum. Besides these, cases of congenital atresia or absence of puncta have also been reported by Zehender, Vossius, Fieuzal, Emmert and Blanchet.

Cases have been reported where the puncta were not absent, but only closed by a membrane. Le Henoff calls attention to this condition, claiming that it is not rare in infants to find a small pellicle covering the opening of the puncta.

A. Rochon-Duvignaud, in a very exhaustive article, gives the results of his researches on the anatomy and pathology of the lachrymal passages in the adult and the new-born. According to this observer, in the fetus the nasal duct, up to a certain period, is separated from the nasal fossa by a membrane. The duct also exhibits annular diaphragms or valves at various points along its course; these diaphragms were found by the author in the new-born in more than half the cases. Persistence of a nearly imperforate membrane closing the lower end of the nasal duct, or the presence of diaphragms with only a minute passage through them, is a cause of stenosis in infants, especially when, from the stagnation and accumulation of the secretions, infection, inflammation and swelling of the mucosa result. Bochdalek, as early as 1866, in a contribution to the anatomy of the lachrymal organs, calls attention to the fact that in extremely rare cases the inferior valvule of the lachrymal sac develops

so as to form a nearly imperforate thin membrane closing the canal. He mentions two cases where this condition existed.

The presence of these valves, especially at the junction of the sac with the lachrymal canal, and the junction of this latter with the nasal fossae, are considered by many to play the most important role in the stenosis found in infants. For instance, Beraud in his researches states that a valve at the junction of the nasal duct and nasal fossa is missing in only three or four per cent. of cases, and he found complete obliteration of this orifice in fifteen per cent. of the cases of lachrymal stenosis. He also states that the so-called valvule of Taillefer, situated about the middle of the nasal canal, is present in about six per cent. of the cases and may be so developed as to close the canal.

2. Lachrymal stenosis occurring as the result of spasmodic contraction in some portion of the passages. Allow me briefly to relate a case which occurred in my practice more than a year ago: Master B., aged two months, was brought to my office for consultation on account of an epiphora of both eyes. On examination I found a slight catarrhal conjunctivitis, while the puncta were freely open. The condition had been noticeable for three weeks past. No discharge could be pressed from the lachrymal sac. A wash was given for the eye, consisting of sulphate of zinc, boric acid and water, to be used three times daily and to be accompanied with pressure over the lachrymal sac. This was continued for three weeks, with no decided improvement in the condition. About this time the father noticed that the infant seemed very fretful, and on consulting his family physician it was decided to have the infant circumcised. This was accordingly done and an immediate cessation of the

epiphora was noticed, which has continued ever since. I then began to look up the literature to see if I could find a similar case. This I have been unable to do. The relationship between the circumcision and the cessation of the lachrymal symptoms was so close that I can not but consider it in the light of cause and effect.

In looking up the literature of the subject, I find that there is some reference to spasmodic constriction of the lachrymal passages as a cause of stenosis. In the transactions of the French Ophthalmological Society for 1891, Galezowski states that epiphora often occurs from spasmodic or irritative muscular contraction of the lachrymal passages without any organic changes being present. Wicherkiewiz, at the same meeting, corroborated Galezowski's observation as to the occurrence of spasmodic strictures. Seggel, in quite an elaborate article, calls attention to the presence of muscular tissue around the canaliculi and puncta, and reports a case of stenosis, which he said was due to contraction of the sphincter, in my judgment, which is the frequent cause of "watery eyes" in the very aged.

R. Schirmer, in *Saemisch. Handbuch,* says that spastic constrictions of the canaliculi may occur (as shown by McNamara and Galezowski) in nervous and anemic persons and in this way produce the same disturbances as other obstructions. McNamara, in his work upon the eye, mentions briefly spasmodic stricture of the canaliculus, which occurs either at the inner or outer opening of the canal. The accompanying watery eye, if long continued, will be of intermittent character.

Fano calls attention to the existence of spasmodic epiphora due to spasmodic constriction of the lachrymal puncta and canaliculi by spasms of the muscles of Horner. The condition occurs only in women of nervous tempera-

ment, often in association with neuralgias. In this manner occurs the explanation for the watery eyes sometimes found among patients suffering from some error of refraction. No doubt but that some of you have seen such symptoms disappear after the proper glasses have been adjusted to the eyes. Since the occurrence of this case in my own practice, I am firmly convinced that we should look more carefully into conditions which might act as a reflex cause in producing this spasmodic constriction in the lachrymal passages. Observation teaches us that epiphora in infants sometimes disappears in a night, and in such cases may we not attribute this result to a relaxation of a spasmodic constriction?

At this point allow me briefly to call attention to a recent article by Schirmer in the *Zeitschrift fur Augenheilkunde*, which to my mind has a very important bearing in the treatment of watery eyes in elderly persons and in those afflicted with weak physical constitutions. In this article Schirmer recites three cases in proof of his theory that the outflow of tears from the conjunctival sac into the nose is caused solely by the contraction of the lachrymal part of the orbicularis palpebrarum muscle (Horner's muscle), which takes place in the blinking movements which we are constantly carrying out. He holds that neither gravity, nor capillary attraction, nor aspiration through the nose has anything to do with it, but that Horner's muscle by its contraction causes a dilatation of the lachrymal sac which thus aspirates the fluid into itself.

My own observation agrees almost entirely with these views, and for this reason I have long held it to be meddlesome surgery to slit up the canaliculi and probe the lachrymal duct in every case of watery eyes.

Unless there are decided symptoms of catarrh of the

sac and lachrymal duct, the punctum should not be cut, but measures of a milder nature should be used for an indefinite time in the hopes of thereby bringing relief. When the punctum is cut you destroy the function of the sphincter muscle around the opening, and this of itself will make still worse the condition you are trying to remedy. Many elderly people have watery eyes, not because of a lachrymal stenosis, but because this muscle has become weak and flabby and no longer carries on its intended function. How unscientific, then, to slit such a punctum with the idea of giving relief.

3. Stenosis, the result of a catarrhal thickening of the mucous membrane at some point in the lachrymal passage. This third and last consideration of stenosis I would place as the most frequent cause of epiphora in infants. In the cases which I have seen there was a slight catarrhal conjunctivitis which was either primary or secondary to a similar condition in the lachrymal passages. In only one instance could secretion be expressed from the lachrymal sac. In two instances there was a marked catarrhal condition of the nasal cavities. This latter organ should always be closely examined in such cases.

A. Peters, of Bonn, has reported seven cases of lachrymal stenosis in infants due to a catarrhal condition of the mucosa of the lachrymal sac. He believes that blennorrhea of the lachrymal sac in new-born infants is caused by the persistence of the fetal membrane closing the lower end of the nasal duct. Fluid accumulates in the sac, the product of cellular disintegration and secretion from the mucosa of the sac, rather than derived as an inflammatory exudate from catarrh of the mucous membrane. The condition is one of atresia and retention and not catarrhal inflammation.

He recommends simple treatment, expression of the

contents of the sac by digital pressure and repeated irrigation of the eye without the use of the knife or probe. He quotes Vossius and certain French authorities in favor of gentle treament. He strongly urges this palliative treatment in preference to any instrumental applications.

In support of Peter's theory, Lange reports a case of blennorrhea of the lacrymal sac in a child five days old. Pressure upon the sac was followed by a discharge of laudable pus from the nasal cavity of the same side, but none came from the lachrymal canals. All symptoms of lachrymal obstruction disappeared in a few days. Heddæus confirms the observations of Peters, but differs from him in thinking that the mechanical expression of the contents of the sac is unnecessary. Konigshofer, in discussing the epiphora in children, says that dacryocystitis or dacryostasis neonatorum, according to his observation, is mostly a temporary blocking of the passages by mucus or a persistence of a thin epithelial closure of the nasal end of the duct. All cases observed by him were cured by industrious expression of the lachrymal sac, a passage of the sound being necessary in only one case. Landolt, in treating of obstructions in the lachrymal passages of the new-born, has this to say in regard to the treatment: according to his observations it is never necessary to split the puncta. He dilates the punctum with a conical sound and injects either a bichlorid solution 1 to 5,000, or 10 per cent. solution of boric acid into the sac with an Anel's syringe.

An important cause of a catarrhal condition in the lachrymal duct, and more especially in the nasal cavities, is the presence of adenoids in the nasopharynx of these little patients. Three cases have come under my observation during the last two years, where a condition of watery eyes was associated with the presence of adenoids and

where the removal of the latter caused an entire disappearance of the eye symptoms. I make it a practice to examine the nasopharynx of every infant brought to me with a catarrhal and watery condition about the eyes, and if adenoids are discovered they are removed immediately, no matter how young the patients.

Before writing this article, and after consulting the various works on ophthalmology to see what the authors had to say in regard to epiphora in infants, I addressed letters to twelve ophthalmologists and asked them to answer the following questions:

1. Have you ever seen any case of stenosis of the lachrymal passages in infants which you thought was due to spasmodic contraction, the result of a reflex irritation?

2. What treatment do you use for lachrymal stenosis in infants?

To these letters I received seven replies, as follows:

Dr. H. Knapp: 1. No. 2. I leave the lachrymal trouble alone, as it commonly rectifies itself by the development of the nose.

Dr. E. Gruenig: 1. I can not recall a case of lachrymal stenosis, either in infants or adults, due to spasmodic contraction. 2. In cases of lachrymal stenosis in children I probe under ether, using Theobald's probes.

Dr. William Cheatham: 1. No. 2. I have seen, I think, as many as five cases of stenosis of the lachrymal duct in infants, all relieved by one to three probings with Bowman's No. 1, without incision of the punctum.

Dr. Swan Burnett: 1. I have never seen a case of stenosis of the lacrymal passages in an infant which I thought was due to spasmodic contraction. 2. The few cases of dacryocystitis in infants that I have seen I have treated in the usual way by opening the canals and treating the sac. I don't remember that I ever saw a case of stenosis not due to inflammation.

Dr. Adolph Alt: 1. I do not remember having ever seen a stenosis of the lachrymal passages in infants which I thought was due to reflex contraction. 2. The cases of stoppage in infants, if not due to the infection of the mucous membrane of the drainage apparatus, I have always referred to an epithelial adhesion, and this usually gave way to one or two probings.

Dr. George de Schweinitz: 1. I have never seen a case of stenosis of the lachrymal passages in an infant which I thought was due to a spasmodic contraction, the result of reflex irritation. 2. The treatment I use for lachrymal stenosis in infants depends entirely upon the etiology. Many of the cases get well without any treatment except some irrigation of the conjunctival sac and nares; they get well simply because in the development of the nose a preexisting contraction of the passage disappears. Others, evidently dependent upon a nasal catarrh in the broadest acceptation of the term, get well by nasal treatment. A few with a good deal of purulent secretion are associated with stricture and seem to me to demand the same treatment that a similar condition in adults requires. I very rarely, however, and I have seen a good many cases, have found it necessary to divide the canaliculus and pass probes.

Dr. Samuel Theobald: 1. No. 2. I have met with a good many cases of blennorrhea of the lachrymal sac in infants, accompanied with epiphora. In most of these cases there was not an actual stricture of the duct (such as we meet with usually in adults), and they have gotten well without operative interference. My favorite remedy is a collyrium of hydrarg. bichlorid 1-24 grain, sodium chlorid 3 grains to ounce of water. This is to be dropped into the inner corner of the eye three times daily, each application to be preceded by an attempt to empty the lachrymal

sac by pressure with the finger-tip. Occasionally it happens that no benefit results from this treatment. Then, after it has been thoroughly tested for some weeks, I resort to operation, slitting the canaliculus and probing the duct.

In all my cases a cure was established by the use of an astringent wash to the conjunctiva in connection with massage over the lachrymal sac. In no instance was a probe used. I can imagine some cases where it is necessary to slit the canaliculi and pass probes into the nasal duct. Palliative measures, such as the use of astringent washes, accompanied by massage over the lachrymal sac, will accomplish the necessary result in all but exceptional cases, even if the treatment has to be continued for several weeks. I believe that the canaliculus should never be slit, and thus destroying forever the contractile effect of the sphincter around the puncta. At the same time it is necessary to see that there is no blocking of the nasal passages with inspissated mucus. Cleansing of the nasal passages should be as routine as the cleansing of the eye. I am firmly convinced that many cases of epiphora in infants will be relieved if more judicious attention is given to the nasal cavities.

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SOME REMARKS UPON THE OPERATIONS FOR INGUINAL AND FEMORAL HERNIA.

By W. S. ELKIN, A.B., M.D., Atlanta.

It is not my purpose in presenting this paper to suggest any new operation for the radical cure of inguinal hernia, but to endeavor to impress upon the members of this Association the importance of having their hernia cases submit to an operation that has practically no mortality, and is in most instances attended with brilliant results. In the discussion of this subject I will confine myself to the operative treatment of inguinal and femoral hernia.

The operative treatment for hernia dates back to Celsus in the first century, who operated upon nonstrangulated hernia in children between the ages of six and fifteen years, but advised against operative interference in strangulated hernia. He exposed the hernia sac by a free incision, and, after reducing the contents, ligated it high up and cauterized the portion beyond the ligature. In the fourth century many ingenious methods were advanced in connection with this operation, some of which have been revived and are now in vogue as new operations. In the seventh century Paul of Ægina suggested as a necessity in connection with this operation castration. In the middle ages, besides castration, many other variations in the technique of herniotomies were introduced, such as ligation of the sac, invagination of the sac and scrotum, and cauterization. It was not until the tenth

century that mechanical appliances were resorted to. Many years following this method of treatment all kinds of operations were discarded.

The modern methods of treatment began in 1831, when Stromeyer instituted subcutaneous surgery, which was later advocated by Valpeau, Pancoast and others. These means are often now resorted to by the "quacks" of our profession, and are frequently advertised as radical cures without the use of the knife. This method, however, was shortlived, as it proved to be unsurgical, dangerous and unsatisfactory in its results. In 1835 Gerdy and Wurtzer introduced the first modern operation, the principle of which consisted in invaginating the scrotum and permanently fixing it in the inguinal canal. After the promulgation of wound-treatment and antiseptic surgery by Lister, ancient methods of operation were revived, and the various steps and technique have gradually improved until now the operation for the radical cure of hernia seems almost perfect. Czerny in 1876 published a series of cases and described his method, which consisted in obliterating the sac and closing the canal and the external ring with catgut and silk. Later on MacEwen infolded the sac in the canal. Kocher did the same operation, except the canal was sutured with the sac external to the aponeurosis of the external oblique. Following this method Bassini, Marcy and Halsted suggested the ligation of the sac and closure of the canal after displacement of cord.

In regard to the choice and value of the various methods now in vogue, no hard and fast rule can be laid down in this matter. It is a question of personal equation. Most frequently Bassini, Halsted and Ferguson operations are done, but my preference is Bassini's. In this operation the sac is exposed by an incision about one-half

an inch above and parallel to Poupart's ligament, the incision extending just external to the internal ring and internal to the external ring. The aponeurosis of the external oblique is exposed. This tissue is divided over the canal and exposes the sac, cord and vessels which lie posteriorly. By a blunt dissection the sac is carefully separated from the cord and made perfectly free from the surrounding structures for at least one-half to three-fourths of an inch within the internal ring. The sac is then opened and the contents reduced. After this the neck of the sac is transfixed by a double No. 1 chromic catgut ligature and firmly tied, care being taken not to include in the ligature any of the contents of the sac. That portion of the sac beyond the ligament is then removed. The next step in the operation consists in suturing the internal oblique and transversalis muscles to the lower part of Poupart's ligament beneath the cord and its vessels. Usually about four uninterrupted No. 2 chromic catgut or kangaroo-tendon sutures are necessary for this purpose. If there is any deficiency in the origin of the internal oblique or much weakness of the muscles above the internal ring, Coley suggests that a suture be taken above the internal ring. Of course, great care must be taken not to constrict the cord too much as it emerges from the ring. After these sutures are tightened the cord is then placed over the new floor just made and the fascia of the external oblique united by means of continuous or interrupted chromic catgut sutures. The skin and subcutaneous fascia is now closed over by interrupted silkworm-gut sutures, or better still, by a subcutaneous No. 1 chromic catgut suture. The wound is then dressed in an antiseptic manner by applications of sterilized gauze, cotton and spica bandage of the groin. In children it is well to apply a plaster of paris bandage

over the dressings in order to keep the parts perfectly at rest. As primary union is one of the greatest and most essential considerations of this operation, the most scrupulous care in regard to antiseptic technique is required. The parts should be thoroughly cleansed by soap and water, bichloride solution, and lastly 50 per cent. alcohol, the assistants and operator wearing rubber gloves. It is needless to say that the same care should be exercised in reference to sterilizing the instruments and the suture materials used. Personally, I prefer No. 2 chromic catgut sutures, which are rarely absorbed under twenty days, to any other material. Next to this my choice would be kangaroo tendon.

In reducing the contents of the sac the greatest care should be exercised in tying off the omentum, should this be necessary, for serious accidents and death have occurred from hemorrhage when the omentum has been ligated. I have seen the cord and vessels injured in this operation, and great care should be exercised in separating these structures from the sac. Any injury to the spermatic vessels might cause secondary hemorrhage and death of your patient.

The best class of patients for operation in reducible hernia are children between six and fifteen years of age. Children between two and five years of age stand the operation remarkably well and the results are quite satisfactory.

In femoral hernia I believe that Bassini's method is undoubtedly the best. I have never yet seen a recurrence in these cases even where strangulation existed. In this operation an incision is made about three inches long, below and parallel to Poupart's ligament, the center of the incision resting over the most prominent portion of the tumor. By a careful dissection the sac is exposed

and by a blunt dissection freed from the surrounding structures. It is then opened and the contents reduced. The neck is then transfixed with No. 1 chromic catgut sutures, tightly tied, and the distal portion removed. This brings into view Poupart's ligament and the plica falciform and the pectineal fascia. With a small needle, threaded with No. 2 chromic catgut, the under part of Poupart's ligament and the pectineal fascia are brought together by interrupted sutures. About three sutures are necessary for this purpose. After that two or three sutures are carried over the pectineal fascia and the falciform process and tied over the first sutures introduced. The operation is then finished by closing the skin wound and dressing antiseptically.

In looking over the statistics of the Grady Hospital, I have succeeded in collecting one hundred and thirty-one operations for inguinal and femoral hernia. Ninety-three of these were indirect inguinal, one direct inguinal and twenty-eight strangulated inguinal hernias. There were six nonstrangulated and three strangulated femoral hernias. Of the one hundred inguinal and femoral hernias nonstrangulated operations, there were no deaths. Of the twenty-eight strangulated inguinal and three femoral, making a total of thirty-one strangulated, there were eight deaths. There were nine recurrences out of the one hundred and thirty-one cases, so far as we have been able to ascertain, three of these following the operation for the nonstrangulated variety, and six recurrent after the operation for the strangulated hernia.

In our private sanatorium we have had in the past few years fourteen cases of reducible inguinal hernia, one strangulated inguinal hernia, four nonstrangulated femoral and one strangulated femoral, making a total of twenty operations with no deaths and one recurrence.

The case that was recurrent was an operation in which there was an undescended testicle and deficiency in the origin and development of the internal oblique muscles. Of the one hundred and eighteen operations for reducible hernia, there were no deaths. Out of a total of one hundred and fifty-one cases, there have been ten recurrences and eight deaths, the mortality existing only in operations for the strangulated variety. In the strangulated variety there was frequently present at the time of the operation uremia, cystitis, gangrenous gut and other serious complications.

In this connection I wish to report in brief two cases of strangulated hernia that were operated on in our sanatorium, each of which I consider unique and interesting.

Case 732, aged 80, admitted October 16, 1902. Strangulated right oblique hernia. Previous health good. Had been wearing a truss for about thirty years, but for the past few years found great difficulty in keeping the hernia reduced. Thirty-six hours before coming to the sanatorium was seized with violent pains in right groin, and upon examination found the hernia had come down and could not be reduced.

Vomiting, also constipation; no effect from salts or enemas. Examination on admission found abdomen distended, tender on pressure, tumor almost as large as two fists extending into scrotum. Operation was advised and done at once under gas and ether anesthesia. The bowels were found very much congested and quite dark in places, but, when constriction was relieved, it showed sufficient vitality to be returned into the abdominal cavity. The operation was completed by making a Bassini operation for the radical cure of hernia. This case interested me on account of the age of the patient and the rapid recovery he made following the operation. He left the sanato-

rium in about four weeks and had a perfect result, with no recurrence up until the time of his death, which was two and one-half years later.

Case 1173, J. L. T., aged 66, admitted December 13, 1904, strangulated femoral hernia. Health has always been good. Has been an alcoholic drinker. About twenty years ago, while riding a wild horse, a small elastic tumor appeared just below Poupart's ligament on right side. On account of a severe strain the tumor increased in size and he has never been able to have it reduced. About eight years ago a right inguinal indirect hernia appeared; this was easily reducible. On Saturday, December 10, 1904, began to have griping pain in abdomen in right inguinal region; bowels did not move that day. Took calomel, oil, salts and enemas with no effect. Pain had never been severe but was always present. No vomiting. Sunday, condition same. Monday, vomited first time; still no movement from bowels, although had taken repeated doses of salts, calomel and oil. Tuesday, pain increased in severity; still no movement from the bowels. Pulse good, no fever. Examination on admission to the sanatorium showed abdomen distended, no pain nor tenderness, tongue coated heavily, brown and moist, temperature 99, pulse 92 and good, respiration 26. Operation: An incision one inch below and parallel with Poupart's ligament over the most prominent part of the tumor, and by careful dissection the sac was readily exposed. The tumor was about the size of two fists. The contents of the sac consisted of the omentum and small intestine. The omentum and the intestines were intimately adherent to the femoral ring. Much difficulty was experienced in breaking up these adhesions and relieving the constrictions. The strangulation had existed so long that the intestine was necrotic for some distance.

requiring the resection of about eighteen inches of the gut. An end-to-end anastomosis was made by means of a Murphy's button and the operation completed. The patient was extremely ill for more than a week, and during this time his life was despaired of. About eight or nine days after the operation we succeeded in getting his bowels to move freely, and from this day on the patient continued to improve. Previous to this there had been stercoraceous vomiting and great nausea and depression. The Murphy's button was passed on the seventeenth day following the operation. There was some infection of the wound, which healed gradually by granulation, and the result in effecting a permanent cure has been perfect. This same patient returned to the sanatorium about a week ago, and we made a Bassini's radical operation on the left side for a reducible inguinal hernia. This case is interesting from the fact that more than eighteen inches of the gut was resected and the strangulation had existed four days previous to the operation. I do not believe that I ever saw a patient's condition so extreme and get well. We had present with this patient stercoraceous vomiting, black vomit and a septic condition, from which it seemed impossible to survive. The patient was an alcoholic drinker, which added also to the severity of the case.

I have merely reported these two cases to impress upon the members of this Association that often in extreme old age and with conditions that seem beyond help, we may be able to get good results.

In conclusion, I wish to state that I believe the day is at hand when we should advise all our patients that are suffering from hernia to submit to an operation. The statistics collected by Bull and Coley, who have probably done more work in this line than any other surgeons in this country, show the very low mortality rate of not more

than one and one-fourth to one and one-half per cent. The cases that I have reported above show in nonstrangulated operations no mortality, and about six per cent. of recurrences. Taking these facts into consideration, it seems to me that every case of hernia should be operated on.

DISCUSSION ON DR. ELKIN'S PAPER.

Dr. J. B. Morgan: I have listened with a great deal of interest to the able paper by Dr. Elkin, and I heartily agree with him as to the general conclusions. I think that by all means the Bassini operation for the radical cure of hernia is the best. I do not agree with him that the kangaroo tendon is suitable material to apply. What I have gotten hold of has not been uniform in size, and it will break.

I do not think the mattress suture should be used to bring together the edges with Poupart's ligament. For this I should use No. 2 round chromacized catgut. I do not use the suture to go around and through, as it will constringe the tissues and cuts off the blood, and causes local necrosis. The interrupted suture of good quality, No. 4 chromacized catgut, is best. A suture should always be applied above the internal ring. I have seen two occurrences of failure as a result of not applying the suture above the internal ring.

Another thing, there is tension on the skin after the radical operation for inguinal hernia. The tissues have been stretched and they rapidly regain their elasticity and pull on the sutures.

To relieve the tension, I place pieces of plaster parallel to the wound and plaster them down good and firm, and then I lay a piéce of gauze over the wound, and take a needle and thread and stitch across from one plaster to the other, and this relieves the tension on the wound. If you do not do this the tension is liable to result in slight infection.

RECURRENT PARALYSIS OF OCULAR MUSCLES ASSOCIATED WITH PAIN.

By ALEX. W. STIRLING, M.D., Atlanta.

This paper was written in October, 1903, but never published, as I wished to watch the case longer.

The following is a good example of a case, of which only some forty have up till now been reported.

When I first saw the patient in February, 1902, he was twenty-eight years old. He then told me that ten years previously he had had a slight attack, lasting for only a few days, but it was not till seven years later that he experienced the full force of his trouble, which has consisted in recurrences of excruciating pain in the left eye and temple, followed by paralysis of the third nerve. I shall first describe his condition as I found it at his first visit. He had been partaking freely of acetanelid, codein and morphine for the relief of his pain, and in consequence was pale and slightly cyanosed, with a very weak pulse. The attack had begun the night before with pain, which had come to a height in an hour or two. The diameter of his right pupil was now 2 mm. That of his left, 6-5 mm. Vision of both right and left eyes was full 6-5, without hm. Left accommodation was paralyzed, and he required a plus 3-D lens to read at twelve inches. The movements of the globe were still normal, and there was no ptosis. Left T was normal, and the interior of the eye was healthy. I prescribed croton chloral hydrate and gelsemium, to be begun when the effects of the other

drugs had diminished, and two leeches. I saw him again on the third day and found that the prescription had been of no benefit, and that soon after being here the external muscles had begun to be affected. He had now absolute ptosis, and, though the eye did not then diverge, he could turn it outward, but in no other direction beyond the middle line. No movement of the sup. oblique was observed. The pupil was fully dilated. The pain had somewhat lessened. I advised arsenic, quinine and strychnine. When I next saw the patient, six months later, the left pupil was still too large, but acted fairly well to light and to convergence. There was no ptosis and the ocular movements were normal. He had occasional pain, and he now tells me that on waking his vision was poor for near objects, and that then he used, and still uses, eserine, each application enabling him to read for two or three hours, and making the pupil as small as the other, or smaller. Without eserine he had required a plus 3-D lens. There was a slight, but apparent, exophthalmos. I saw him a month afterwards, in September, when an acute attack of pain was just beginning, and prescribed dionin with, as I expected, no benefit. Between then and now he has had attacks of pain every two to four weeks, with slight paresis once, in December, 1902. Looking back over the history of the affection, as it has been in his case, we find in many points a close similarity to the majority of the others, which have been published. On neither the father's nor the mother's side was there any nervous affection, and among seven brothers and four sisters only one, the sister just older than himself, who has migraine every fortnight. It is not usual to find the family history so free from nervous cases. His own general health seemed to be good; no malaria, no rheumatism, no specific history nor symptoms, no albuminuria, no dia-

betes; knee-jerks, nose, throat and ear normal. His only trouble is a distinct tendency to constipation and dyspepsia. Four years ago his neck was hurt by an elevator, without apparent subsequent bad results.

In considering the frequency of the attacks it is necessary to separate the pain from the paralysis. Seven years divide the first from the second attack of pain, which occurred four and a half years ago, since which the intervals between the attacks of pain, lasting each four or five days, have varied from fourteen to thirty days, but he has had altogether only four onsets of paralysis. The first was in 1889, from which he recovered in two months; the second a year later, from which he took three months to get well. The next, the following year, continued for six months, and from the last attack, a year afterwards, in February, 1902, he recovered after three months. Besides these, there was also a slight paresis in December. But in speaking of recovery, it is necessary to modify its meaning, because the pupil has never become normal in size or action since the first attack, and since the second the ciliary muscle has been more or less paralyzed, so that he can not read with the affected eye without eserine or a plus 3-D lens, the distant vision being normal, this continued ciliary paresis is the only instance of the kind which I have seen recorded, but there is a general tendency towards chronic paresis of the iris after a number of attacks. The aching, which is very painful, sharp and continuous, lasts twenty-four to thirty-six hours before any paresis appears. This patient thinks paresis would *always* have appeared had it not been for large doses of acetanilid, the only drug, he says, which is of any use. He, unlike many cases, does not vomit, unless sometimes on purpose, in order to relieve the pain.

The sensation of the face has not been diminished, but

a soreness remains long after the acute pain has disappeared, and, indeed, now seems to be permanent. There is nothing remarkable during or after the attacks in relation to the amount of urine passed, the patient's manner, the movements of the facial or lingual muscles, the secretion of tears or of saliva, all of which have been abnormal in some other cases recorded. As regards sex, the case is one of the minority.

The F. V. was not taken during the height of an attack, but in an interval, taken by the hand, it was full. No scotoma was shown for red or green. At no time was there pain on pressing the globe back into the orbits.

Recurrent paralysis of an ocular motor nerve, associated with pain, is well exemplified in this case. The third is the nerve most commonly affected, and sometimes only the branches to the external muscles, but the others, and even the seventh, are not immune, and sometimes all are attacked at the same time. The tendency generally is towards a diminished degree of recovery between attacks.

Concerning the etiology of the affection, though Charcot called it ophthalmic migraine, though it is frequently found in neurotic families, and though a large proportion of those, who ultimately suffer from it, and many, who never do, have a history of periodic headaches on the same side, yet the fact that the pain is so prolonged (it is said that the pain of migraine never lasts less than six nor more than twenty-four hours), the absence of visual phenomena and the restriction of the site of the pain, make it probable that the disorder is not true migraine. Besides the permanent paresis in the iris and in the ciliary muscle seems sufficient to put the theory of any functional disorder out of court.

If it is not functional, where is the lesion? Not in the

cortex, because, if there, the paralysis would have been conjugate. Drs. Holmes, Spicer and Ormerod, in their description of a case, in which "voluntary closure of the lids is complete, but in ordinary unconsciousness blinking the left (paralyzed), lids sometimes do not close at all," give this as an exemplification of Mendel's hypothesis. Mendel's hypothesis, which has proven to be almost certainly correct, is that the orbicularis muscle is supplied by the nucleus of the third nerve, though the fibres run in the seventh nerve. But the fibres from the third nerve to the seventh enter the latter above its nucleus, because lesions of the seventh at the level of the nucleus or below paralyze the orbicularis. It follows that if one and the same lesion in this case paralyzed the third nerve and the orbicularis, it must have been a cortical lesion, and yet the paresis was not conjugate, but one-sided.

It is probably not nuclear, because acute nuclear paralysis of the third nerve is usually a symptom of serious progressive disease, is generally binocular, is apt to affect the levator palpebrae little or not at all, and is not likely to be associated with pain in the third nerve.

It is probably not fascicular, because one would expect, along with the ocular paralysis crossed hemiplegia. There remain only the nerves between their appearance on the cerebral base and the eye. If the lesion lay within the orbits, we should probably have other local symptoms, such as tenderness, there, at least on pressure or movements, and there was none. Besides, there would be a likelihood of involvement of the optic nerve, and in only one of the cases, which I have seen so far published, was there any such thing. That was a case of partial optic atrophy, which may have been an entirely separate matter. In a case also of double ophthalmo-plegia externa, with limitation of F. V., the optic nerve may have been

affected. But in this case at least the paralysis is almost certainly of basal origin, and as only the superior branch of the fifth nerve is involved, the pain being confined to the distribution of that division, the lesion must lie between the gasserian ganglion and the sphenoidal fissure. It may here be observed that in basal lesions of the fifth nerve the third nerve is generally paralyzed.

It may have been observed that I have stated that at a time when the third nerve in this case was already apparently paralyzed, the eye was still movable to and from the middle line outwards. Indeed the patient believes it never was fixed in divergence, and could always be moved somewhat outwards, though we may assume that the completeness of the ptosis interfered with his observation on this point. Especially as we know that the sixth nerve of one side communicates in the brain with the third of the opposite side, a certain series of sixth nerve cases should be interesting in this connection. Of these I have myself seen some half dozen. In them the external rectus alone is paralyzed or absent, and yet the eye at rest does not turn inwards, but lies normally in the middle line. I do not advance any theory to account for the absence of deviation in these cases.

But some of Sherrington's investigation are interesting in connection with them. He showed that "the cortical area for the contraction of a given group of muscles coincides with the area for the inhibition of the group antagonistic to it." He divided nerves to all the muscles of the left eyeball of a monkey, except the external rectus, producing a condition resembling that of my patient. Stimulation of those cortical centers, which cause a conjugate deviation of both eyes to the right, resulted in a movement of the left eye towards the middle line. This is held to be due to a simultaneous inhibition of

the opposing muscles, in this case the left external rectus. Other experiments show that the cells, the activity of which is thus inhibited, must lie below the cerebral cortex.

In the case of this patient he himself believed the foundation of his troubles lay in his digestive apparatus, and a toxemia appears to the writer to be the most likely explanation. But why the paresis should be in part permanent is a question which may, however, be answered by supposing a resulting destruction of nerve tissue, such as we frequently see in the optic nerve after an acute inflammation. Dr. Bates Block informs me that the patient came under his care on account of dyspepsia, and that he believes that the treatment directed towards the improvement of the condition of his abdominal organs has been of use in reducing the severity of the attacks of pain. Mr. Priestly Smith also mentions a case for which he prescribed with decided benefit regulation of diet and a pint of hot water night and morning.

In one case (recorded by Kljatschin) malaria appeared to be distinctly the cause, and large doses of quinine had a curative effect.

So far as I am aware only four of the recorded cases have arrived at the post-mortem table. In one was found a fibro-chrondroma of the third nerve. In the second were plastic exudations and fibrous adhesions involving the coat of the third nerve. In the next were granulations containing tubercle bacilli around the third nerve root, and on the fourth a small fibroma connected with dura-mater completely involved the third nerve.

This other case may be worth reporting, though doubtfully belonging to the class under discussion. Betty J., a colored woman, forty-one years of age, nursing a baby seventeen months old, in July observed swelling of left lids. Some days later severe pain began in and around

the left eye and in the temple. A week or two later she consulted me concerning the pain, and also diplopia, which was just beginning. I found then that all the branches of the third nerve acted normally. Four or five days later the left external rectus was paralyzed, with marked strabismus. Five days later the inferior rectus also showed slight, though distinct, paresis. The third nerve otherwise remained unaffected. The fundus, vision, knee-jerks and facial sensation were normal. There had been no vomiting and no constipation. Nothing was found in the orbits. No scotoma for colors. F. V. full. There was no polyuria.

There was no history of trauma or syphilis, but out of her twelve children four were born dead. I prescribed anti-specific drugs. The pain gradually diminished, and in thirty days from the beginning there was none and the movements of the eye were normal.

Several cases of recurrent paresis of the sixth nerve are included in those gathered together by Drs. Holmes, Spicer and Ormerod. Trans. Oph. Soc. of Great Brit., Vol. xvi, p. 279. Drs. Wissering, Anderson and Ormerod have each recorded cases of one-sided ocular paralysis, associated with edema of the lids and pain.

COMPLICATIONS OF CHRONIC SUPPURATION OF THE MIDDLE EAR, WITH SPECIAL REFERENCE TO THROMBOSIS OF THE LATERAL SINUS, ITS SYMPTOMS AND TREATMENT.

By FRANK M. CUNNINGHAM, M.D., Macon.

The development of heretofore neglected fields of work seems to have been more pronounced in the last ten years than in any corresponding time in the history of our noble profession.

The continued advance of surgery, the improvement of facilities for more accurate and searching bacteriological and pathological investigation, the steadily growing belief in the final triumph of serumtheraphy in certain diseases, at least, the success of Roentgen rays and radium in many lines of treatment—all have added to the glory of the work, which will stand forever as a monument to that profession, whose mission is to help his brother man, to prevent disease, to heal the sick, and promote the health and happiness of the human race. Amid the constant growth to a higher standard of proficiency, however, there is one condition which, to my mind, has not received the consideration which its seriousness should command. I refer to the chronic suppuration of the middle ear.

The utter ignorance of the laity, the apparent lack of interest of the general practitioner, in direct contrast with the awful seriousness of the disease, has led to the belief that a few words on this subject might not be out

of place, and perchance be a contributing factor, however little, in placing the general professional man upon a proper footing with the dreaded condition, and pointing out what his relation and responsibility must be in this regard. In the face of the humiliating confession that we have neglected this line of work, what shall be our attitude? Shall we still lie dormant, and let men die from the direct result of a condition which, with a little vigilance on our part, we might prevent? We are beginning to realize the gravity of chronic suppuration; we know the ever-present danger.

Upon you, my friend, the general practitioner and family doctor (that personage of the greatest trust), devolves the prophylaxis of chronic suppuration. When you have cases of acute infectious disease, keep a sharp watch on the drum membranes during the attack, seek for the congestion, redness, swelling, bulging, in fact any of the symptoms of the acute inflammation of this structure.

If you can not satisfy yourself that you know the condition honestly and squarely, do not hesitate to call in a man who can give you a reliable report of the facts of the case. For although you may cure your acute process, and as far as you are concerned, believe you have done your whole duty, you have, in reality, come far short of the mark if, through neglect, your patient has been put in a state which may have a far-reaching and deleterious effect upon the health, to say nothing of the ever-present danger of intercranial complications.

Show me the practitioner who, having a case of a discharging sinus, knowing that necrosed bone caused the trouble, would let that case go unattended, without making an honest effort to effect a cure. There is not a man in the profession who, if he has thought of the condition

at all, does not know that chronic suppuration is most frequently caused by diseased bone, whether in the middle ear or ossicles. And yet, in many cases this condition is passed as if it were of no consequence. Have we a right to shirk responsibility in this matter? There is nothing to protect our patients except the honor of our individual members. Shall we subject our patients to the constant menace to health, and to chances of most critical seriousness, when a strict attention to careful examination can be preventive? A short reference to the anatomical relations of the middle ear will help us to appreciate how the various complications come about.

The *roof* separates it from the middle cranial fossa, lodging the temperosphenoidal lobe.

The *floor* has just beneath it the jugular bulb.

The *outer* wall has the membrana tympani.

The *internal* wall, the oval window with the footplate of the stapes in it; also the round window, with the secondary membrane.

The *promontory,* indicating the first turn of cochlea.

The rounded eminence of the aqueductus fallopi, in which lies the seventh nerve, running just above the oval window.

The pyramid containing in its hollow the *stapedius.*

The posterior wall has opening or "aditus," which leads directly to the mastoid antrum, the lining membrane of which being continuous with that of every cell in the mastoid apophysis.

The *anterior* wall, the canal for the tensor-tympani muscle, which is inserted into handle of malleus; the processus cochlearformis and the opening of the eustachian tube, the posterior wall of which is in direct contact with the internal carotid artery.

The closeness of this vessel is important to remember

in curettage of the tympanic orifice of the eustachian tube, a most necessary procedure in the cure of chronic suppuration. With a clearer understanding then of the vital structures in the immediate vicinity of this cavity, we are prepared to accept the assertion of that pioneer of ear-work, Prof. Adam Politzer, of Vienna, "that the middle ear is bounded on one side by life, on the other three by death." What are the complications of O. M. P. C.?

(1) Facial paralysis may be caused by a gradual extension of the ulcerative process, finally irritating the canal of the nerve. Or it may result from intercranial pressure, due to extension from otitic trouble. Zuckerkandl reports that there is, at times, a dehiscence in the fallopian canal. In such a condition, what would be more easily accomplished than extension to the nerve through this opening? The nerve is superficial in its descending portion just over the oval window, but I can find no report of erosion in this area.

(2) Mastoiditis may result at any time in the course of chronic suppuration. While this condition may remain latent, and apparently without danger, it is always a ready victim to any acute inflammation, starting up an exacerbation of the old process. These cases are most dangerous, and attended, very frequently, with intercranial complications. Given a condition of chronic suppuration of the middle ear, with a sudden suppression of discharge, with increasing pain, I should insist upon immediate operative intervention, in the absence of any other symptoms. It is one of the most imperative conditions I can conceive of, and should be dealt with in a prompt and decisive manner.

(3) Extension of caries into the semicircular canals is fortunately a rare occurrence. The symptoms of disturbance of the labyrinthine fluid, viz.: vertigo, dizziness,

nausea, vomiting, staggering, and occasionally nystagmus, will seem to show the location of the trouble. The disturbance of function, however, will generally, under judicious treatment, clear up. The danger lies in the extension of the infective process, setting up that dreaded condition of basilar meningitis.

(4) The proximity of the internal carotid artery, lying in contact with the posterior wall of the eustachian tube at its tympanic orifice, renders it entirely possible for the ulceration to extend through this vessel, invariably causing fatal hemorrhage.

(5) We have seen one case in which the pus has burrowed through the tip (Bezold perforation), and sweeping under the fascia and muscles of the neck, invaded the region of the spinous processes of the lower cervical vertebra. This is a rare occurrence, however, the usual route in such cases being down the neck along the course of the sterno-mastoid. In one case there was a distinct Ludwig's angina as a result of the purulent fluid going between the superficial and deep fascia, extending into the thoracic region.

(6) *Epidural abscess,* a circumscribed collection of pus upon, that is, outside the dura mater. It is the result of extension of the infective process from the original focus in the middle ear. The route of extension may be one of several. There may be a sinus leading directly into the cranial cavity; the infection may be transmitted through the various channels, arterial, venous or lymphatic which supply the adjacent structures; or there may be simple extension of the inflammatory process by direct contact of the dural membrane with the diseased epitympanic plate. There are no distinctive symptoms of epidural abscess, and the condition is generally recognized only at time of operation. It is possible, though, to have

such violent infection that a leptomeningitis or sinus thrombosis may be early complications.

(7) *Subdural abscess* is not a frequent complication. It may result from ulceration or puncture of the dura; or extension of the ulcerating process of extradural abscess.

(8) *Serous meningititis* is another rare complication, and at times the cause can be definitely located; but we have seen three cases, in which no definite cause for the meningeal symptoms could be located. (N. Y. E. & E. Intl., 902.)

(9) *Leptomeningitis* is the only intercranial complication, as frequently seen with acute as with chronic suppuration. There is a new bacterial factor which plays a part in acute meningeal inflammation. The diplococcus meningitidis intracellularis, recently described by a New York bacteriologist in connection with ear cases, is the name of a bug, whose presence indicates a most violent type of inflammation. We have seen one case in which the increase in the severity of the disease was so rapid that from eleven o'clock in the forenoon, when the first pain was noted, the condition was so serious the mastoid was opened at ten o'clock in the evening of the same day, and a condition of beginning meningitis was found.

(10) *Abscess of the brain,* as a complication of chronic otitic suppuration, occurs most frequently in the middle lobe (temperosphenoidal). This is natural on account of the anatomical relations. It is rare to find this complication of acute inflammation, though such cases have been reported. Symptoms vary. The most reliable are: Pain and headache in the temporal region, often extending into the frontal. Nausea and vomiting, slow full pulse, indicative of pressure, though, at times, the pulse rate is very high. Low temperature, frequently subnormal—

although cases have been cited with marked hyperpyrexia.

A symptom not spoken of in many text-books, but recorded in several cases of the New York Eye and Ear Infirmary, is that of pain or cramp in the foot on the side opposite to the abscess. Facial paralysis at times. Localized paralysis, or hemiplegia; slow cerebration, irregular pupils, though this is not constant.

Aphasia is a symptom of marked significance. It indicates abscess in the left temperosphenoidal lobe. In left-handed people, the aphasia center is on the right side. Optic neuritis, or choked disc, is a common, though by no means, invariable symptom. Its absence does not in the least preclude the existence of a cerebral abscess.

(11) *Cerebellar abscess* may result from extension of infection from temperosphenoidal abscess through the tentorium cerebelli; or it may result from sinus infection. We have seen one case, which was the result of a wound with a knife, which when incising the sinus wall was carried through the internal vessel wall into the cerebellar area.

The symptoms of cerebellar abscess are pain, low temperature, slow pulse, nausea, vomiting, vertigo, dizziness, staggering gait. Frequent yawning, choked disc, almost invariably present. Slow cerebration, convulsions and paralysis.

In cerebral and cerebellar abscesses we distinguish between two varieties, the treatment of each being so essentially different that I mention it here. In one the process is acute, with no limiting membrane to the cavity. In these the drainage must consist of only a single wick of gauze. This will not cause any pressure of the softened, collapsed convolution. No irrigation should be practiced in such cases, for it would simply cause a dissemination of the infected particles through the structure, with

almost invariably fatal results. In the other variety, the abscess has existed for some time; the inflammation having been productive and formed a limiting membrane for the walls of the cavity. In this variety, it is proper to use more packing, supporting the walls. In this, also, irrigation might be practiced with advantage, though, personally, I have never seen any benefit derived from irrigation of a brain abscess cavity. The means of diagnosis between the two, is by use of the encephaloscope, an instrument devised by Dr. Fred Whiting, of New York. Its value in these cases can not be overestimated.

Sinus Thrombosis.—It is of this condition which I most desire to speak, for it is the one, above all, which, in order to be relieved, must be interpreted accurately and dealt with in the most prompt and radical fashion. Sinus thrombosis in itself means absolutely nothing, from a clinical or physiological standpoint, other than a mechanical obstruction to the venous current. The symptoms, which we readily recognize as dangerous and point to the existence of such an obstruction, are only the evidence of the severe systemic condition, which the toxic agents (which very agents themselves were the causes incipient of the thrombus) have produced. The path of infection is most frequently by a direct extension through the bony wall of the sigmoid groove. Infection, in some cases, has resulted through fissures in the bone; also through infection of the small veins, which drain the infected area and then empty into the sinus itself. Smaller vessels first become thrombosed, and the thrombotic process extends gradually along the vessel wall until the sinus is reached and material for a septic thrombus deposited for fertilization. The lateral sinus, having its bed in the bony groove, itself already a part of the necrotic process, may become diseased by the continuity of

surface. If the septic process begins in the sheath of the vessel, and from this point causes a clot formation within the veins, I hold that any clot formed as a result of such procedure must, in the very nature of its existence, necessarily be infective. Some writers, and men of recognized ability, whose opinion must carry value, speak of "non-infective clots." My personal opinion is, in spite of the little value it carries, that no such thing as a non-infective clot ever existed or can exist in the condition of sinus thrombosis occurring as a result of inflammatory extension from a purulent focus. There have been cases reported from autopsy in which the observer found an obliterated vessel. This means, of course, that at some time the vein had been obstructed by clot. It does not argue, however, that the clot was non-infective. I take it, that the patient simply outlived the toxemia which the bacteria generated. Such cases have been frequently observed, especially in those conditions of sinus thrombosis in which no flow could be induced after repeated efforts to dislodge a clot, and in which the patient subsequently recovered. There is no way, at any rate, to determine with any semblance of accuracy or truth the nature of a clot, except by direct microscopical examination. In the observation of a goodly number of cases, I have never been satisfied that such a condition as non-infective clot, adjacent to an infected area, existed. There is no question in my mind that the majority of cases of thrombosis of the lateral sinus result from extension through the smaller veins, as previously stated, which have themselves become thrombosed as a result of contact with the seat of suppuration. If, indeed, the process of disease be, as Ballance, of London, in his most masterly and exhaustive paper states, one continuous process, beginning with tympanic infection, and going through

mastoid, perisinus and sinus infection, we are more than ever prepared to defend the opinion before expressed, that any clot formation occurring as a result of extension of any infective process must be infective. The sinusitis is an inflammatory process in the sinus wall, involving sometimes only its sheath, sometimes the whole wall. When the inflammation has progressed so that a productive process (which is, pathologically, the beginning of clot formation) is caused within the vessel wall, as a direct result of disease in that wall, itself in contact with and drained by veins which must carry fluid through the infected area, if they have not already become occluded, must in its incipiency be diseased.

In the last century Sir John Hunter and Curveilhier formulated the theory that sinus thrombosis was an evidence of disease within the inner lining of the vessels.

In 1846, however, this theory was attacked by the writings of Virchow, who claimed that the thrombus was the primary cause, and the vessel wall inflammation secondary—the question is to-day unsettled. I know that I have seen two cases in which there appeared a distinct discoloration, amounting almost to blackening of the anterior vessel wall. If there was any thrombus formation it was entirely mural or parietal, and, even at that, very small for the venous current was in no way, in the least, disturbed and a curette carefully introduced into the lumen of the vessel dislodged no particles.

While many writers have done much for development of knowledge along this line of work, and deserve the praise and thanks of the profession, I think that the credit for the most far-reaching and most thorough papers on this subject, certainly in this country, belongs to Dr. Fred Whiting.

"Pyemic Sinus Thrombosis," by Dr. Fred Whiting,

read before the New York ophthalmological and otological section of the New York Academy of Medicine in 1898, was the cause of the most intense enthusiasm. It was the most complete exposition of sinus thrombosis which had then been offered by any American writer. Several European men had written on the subject, but the admirable paper of Dr. Whiting was a most notable advance in the symptomatology and treatment of pyemic sinus thrombosis.

Symptoms.—A typical case will present the following symptoms: Severe and repeated chills, followed by sudden and marked rise of temperature to 104 and above. The temperature may rise from 98 to 105 degrees and return to normal inside of an hour, hence the necessity of frequent records of temperature, certainly not less frequent than every two (2) hours. Pain referable to the mastoid region and the side of the head and neck adjacent; metastatic abscesses; pain along course of jugular vein.

Pulse and respiration show increase in proportion to the increasing pyemia. Consciousness is generally retained up to the very time of death, although some cases show delirium in all its stages.

Fundus changes are frequently present. It is easy to appreciate how any obstruction to the lateral sinus or interior jugular will cause back pressure on the superior and inferior petrosal sinuses. These, in turn, congest the cavernous sinus, and the ophthalmic vein, being in turn congested, causes the congestion of the vessels of the fundus and brings about the condition of choked disc. These are symptoms of a typical case, but it is of the most vital importance, that the disease be recognized before these symptoms occur; for these are simply the unquestioned symptoms of septic absorption—and generally when a case shows these, it is beyond the reach of surgical

aid. We must be prepared to act on the very first exhibition of thrombosis, and once begun we must not stop until we have established a current of blood through the once obstructed vessel or ligated the jugular, low in the neck, to prevent any metastatic involvement of the lungs.

Treatment.—Absolute rest and liquid diet. Under no condition should any opiate be given. Removal of the mastoid cells, with a liberal exposure of the sigmoid sinus. In long, narrow bones, in which the posterior canal wall is abrupt and perpendicular, the sinus will usually be found far forward. In broad, flat, sloping mastoids the vein will be found far back. The bony wall of the sigmoid groove should be removed with rongeur and curette, and not with chisel. The vessel should be uncovered for fully two (2) inches, being especially careful in removing the bone at the knee, where there are numerous small vessels given off. It is easy for these vessels to tear away from the anterior sinus wall, frequently giving rise to hemorrhage. The integrity of the vessel will best be determined by incision. The use of an aspirating needle for puncturing the sinus wall is a procedure which is only mentioned to be condemned. The symptom of pulsation, which is so frequently referred to by many writers, can not be of any diagnostic value. It is difficult to distinguish between pulsation in the vessel and the transmitted cerebral pulsation. Where there is such liability to confusion of the two impulses, any deduction can not be reliable. Palpation of the sinus can not be satisfactory. The "expression experiment" recommended by Whiting is a dangerous procedure, and except in expert hands should not be practiced. Inspection is one of the best aids to diagnosis. If the vessel wall has a healthy blue appearance, the chances are that there is no disturbance of circulation in that vessel. If there be

discoloration, whether the vein be darkened or of grayish-yellow septic appearance, it is wise to incise the vessel. If there be hemorrhage from both directions, the opening should be plugged with iodoform gauze. If aseptic precautions have been observed no harm should come from incising the vein; if, on incision, the clot be expelled and free hemorrhage is established, plug as usual and wait developments. If the obstruction is in the upper end, a curette should be introduced to dislodge the clot, and the vessel should be followed until a satisfactory current is obtained. If, however, the obstruction is in the region of the jugular bulb or below, under no condition should forcible curettage be employed.

If, after free incision, no upward flow is evident, any attempt to remove clot in this region may result in the dislodging of small particles of the infected mass; and if this drops into circulation of the internal jugular (which it most probably would do) the path is clear for the establishment of a septic embolic process in one of the small lung vessels, with a consequent septic pneumonia.

Right here I wish to state that I am unalterably opposed to the introduction of a curette or any other instrument into the lumen of the lower end of the sinus, when there is an obstruction at or near the area of the jugular bulb. The chances of breaking up and dislodging any friable mass of clot formation, with the deposition of small particles of infected material immediately into the current of the internal jugular vein, is a matter of too much seriousness to be risked. Under these conditions we would, most certainly, expect the establishment of a septic embolic process in one of the smaller lung vessels, with a consequent septic pneumonia; or else a condition of pyemia may result, with the presence of metastatic abscesses in various parts of the body.

(At present I have a case under observation, which has already had seven metastatic abscesses and to all appearances will eventually die of exhaustion, which is the direct result of a failure to cut off the septic matter by ligation of the jugular when a diagnosis of clot was first made. This procedure was advised at the time, and refused on the advice of the family physician, as being too radical.)

In fact I am so satisfied that the primary infection is always from without inward, and that an infected sheath is as serious a condition clinically as a clot formation itself, that I am so prepared to advocate the ligation and excision of the jugular vein as low down in the neck as possible in every case which shows discoloration and evidence that disease of the sinus wall has already been accomplished. This is, no doubt, a radical position, but, viewed in the light of latter-day surgery, it will be recognized as the truest conservatism. In the presence of a thrombosed vein, whether the clot be parietal or complete, there should be no question as to the proper method of procedure.

Experience of the most renowned surgeons show that anything short of ligation and excision of the internal jugular, by which path the systemic infection is completed, is an unwarranted loss of time. Any other procedure, for instance, leaving the vessel thrombosed, hoping that the clot which inflammatory action formed and which by nature, up to a certain time, has been protective, will undergo absorption, is bringing into the condition a thorough disregard for the scientific rules of protective surgery and fixing upon the patient an element of chance, which men of science must abhor, and the users themselves must recognize as a most uncertain factor.

In cases where the circulation can not be established,

in order to prevent the extension of the septic process into the lung the internal jugular must be ligated, low down in the neck, immediately beneath the sterno-clavicular junction. The incision should then be carried along the anterior border of the sterno-mastoid to a point midway between the angle of the jaw and the tip of the mastoid process.

The internal jugular should be located in its sheath with the internal carotid and pneumogastric nerve. The numerous tributaries of the vein should then be ligated and severed, and the vessel, with its infected sheath, excised and dissected out from its point of ligation to a point as close to the jugular foramen as possible. If no infected material has escaped into the neck wound, the incision may be closed with sutures of silk or silkworm-gut. In the majority of cases, however, it is safer to leave the wound open to heal by granulation.

The ever-present dangers of chronic suppuration are before you. How will you act? I heartily endorse the words of a recent writer:

"The day is past when intelligent people will be lulled into a false security by the belief that a running ear means nothing, and that a child will outgrow it.

"They are learning to appreciate it as a dangerous condition, while the medical fraternity recognizes that chronic suppuration of the middle ear is responsible for by far the greatest number of intercranial complications and deaths."

DISCUSSION ON DRS. COX'S, ROY'S, CALHOUN'S, STIRLING'S AND CUNNINGHAM'S PAPERS.

Dr. A. W. Calhoun: I did not hear all of Dr. Roy's paper, but Dr. Stirling's and Dr. Cunningham's were not only interesting, but very important. Paralysis of the ocular muscles is of variable duration. I am sorry that

Dr. Stirling did not say more about his cases and give us some treatment that he would suggest.

As to the cases of Dr. Cunningham, they are much more common than paralysis of the muscles, and we realize more and more how very dangerous they are. It is true that we allow these to go without operation, and it is also true that they should not be operated upon by an incompetent person. I have been fortunate enough never to have had thrombus of the sinus, or possibly have not been able to recognize it. I do not care to get these cases if I can avoid it. If you make a mastoid operation and cut into the sinus it looks as if the entire body is coming out at one time.

As to the case of Dr. Roy, of which I heard only the latter part on infantile stenosis of the lachrymal duct, I see many of these cases and they are usually due to some unknown cause of obstruction, and possibly through some little irritation of the nose. It has been my experience that they do not require an operation. I do not remember to have operated upon but one, and all the others got well. The treatment is about as Dr. Roy has outlined. Look after the condition of the nose, and use some astringent with a constant pressure. This will almost invariably cure these cases.

Dr. J. L. Hiers: I regret very much that I was not present to hear the papers presented by Drs. Roy and Cox, and also regret that Dr. Stirling and Dr. Cunningham did not read their papers in full. There is nothing like hearing the clinical history, and nothing so good as hearing this from the author himself. You can read them, but this is not so good as hearing them from the essayist.

As to Dr. Calhoun's case, we must consider the cataract as the most important operation which we are called upon to perform, because the patient's future de-

pends upon the result of the operation. Especially is Dr. Calhoun's paper of great value on account of the opinion which exists among the leading ophthalmologists in our country and the lack of positive literature upon the subject, and particularly on account of Dr. Calhoun's broad experience and his fitness to present the subject in such an able manner. I concur most heartily in all that Dr. Calhoun has said upon this subject, and I feel that we are greatly indebted to him for the presentation of this subject at this particular time.

Dr. Ross P. Cox: In reference to bilateral operation upon cataract, I think Dr. Calhoun's position in the main is correct. I think that to lay down an absolute rule is carrrying it too far. Where the patient is in good physical condition, and where we can be reasonably sure of our asepsis, and the patient has come a long way, it is proper I think in such cases to do both operations at the same time. We know this is done. Many and many a time I have stood behind Professor ——— and seen him remove one with the right hand and the other with the left and get good results. Of course, you should be careful of the condition of the patient. In very old and feeble cases we should not subject them to the double operation, on account of the shock, etc.

In reference to the suppurating mastoids and lateral sinus thrombosis, I have seen half a dozen operations in the last year, and all recovered, and I had three cases which consulted me and whom I advised to have the operation, as they had other symptoms, and who declined and died, and half a dozen others who declined and recovered. There is no doubt that the exact knowledge to tell just which cases should be operated upon is still lacking. There is still a certain amount of doubt as to when we should operate, but the general practitioner is too con-

servative along this line. In proper hands it is not at all a dangerous operation to open the mastoid and expose the lateral sinus and get at the bottom of the trouble.

Dr. A. W. Stirling: I agree in these papers. I think there is not a one of us who would like to say that a patient should or should not have the double operation, as there are many things to be decided in each individual case.

In most instances of lachrymal stenosis, the passage of a probe is all that is required.

In regard to Dr. Cunningham's case, I have seen the sinus opened in three cases with recovery.

Dr. W. E. Campbell: I think the paper that should receive the most general consideration is the suppuration of the middle ear, leaving out the thrombosis of the lateral sinus. I have thought that nine out of ten of these cases should be surgical cases, and should be so treated. We must get down to the bottom of the trouble to cure it. I venture to say that 20 per cent. of these cases are not cured by the specialist, and they should be treated as surgical cases. I realize that the operation is often denied, and it is often treated as a simple trouble.

PROSTATIC MASSAGE.

By W. L. CHAMPION, M.D., Atlanta.

In a few words I desire to bring before this Association a comparatively recent adjunct in the treatment of deep-seated gonorrheal infection that is indispensable in many cases, if a cure is perfected. This advancement is not original, but one that sufficient attention has not been called to to lessen the number of infections and gain the results in practice we all hope for. The profession as a whole will never be enlightened as to the serious nature of gonorrheal infection, and become so familiar with the disease that each and every member can knowingly inform a patient when he is no longer infected, or can safely marry. Still the work that has been accomplished within the past few years along this line, showing the large percentage of innocent women with acute pelvic troubles, due to the gonococcus, has opened the eyes of many, and it is to be hoped that in the near future the men in our ranks, as well as the laity, will not look lightly upon a disease that causes more suffering than tuberculosis or syphilis. A statement of this kind may be looked upon as a joke or flippantly dismissed, but any gynecologist of experience or genito-urinary surgeon will bear out the assertion. The careless manner in which gonorrhea is treated and dismissed by many practitioners is a stumbling-block to more rapid advancement in the treatment, and in a measure to the suppression of this disease. When the profession looks upon gonorrhea as a disseminator

of infection, and endeavors to suppress the disease and limit its number of victims, as we would diphtheria or smallpox, then we will be on a sound basis to accomplish a great deal more than is being done at present. The large number of men with deep-seated gonorrheal infection who are considered well, or told they are well as they will ever be, not knowing that dangerous elements still lie hidden or dormant in the prostate, prompted the foregoing remarks. "The prostate gland is a sexual organ, partly glandular, partly muscular, lying in front of the bladder about the prostatic urethra. The prostate is the sexual heart. It has nothing to do with urination, and is quite passive during that act. But towards the sexual function it acts as a muscle, a sensory organ, and a gland." This gland when involved by extension of urethral infection is relievable by prostatic massage properly applied. This does not apply to prostatic hypertrophy of old age. The relation of the prostate to the urethra makes the former more susceptible to infection than other adjacent structures. As a rule in patients that are told they have a gonorrheal cystitis, the prostate is the seat of the trouble. Many of the stubborn cases of gonorrhea with profuse discharge and those with only "clap shreds" in the urine, which will not respond to injections, irrigations, and the use of the sound, remain uncured because the prostate is involved and the proper measures to give relief have not been instituted. One of the best friends and most frequent visitors of the doctor is the patient with chronic gonorrhea of years standing, who will go for months apparently well, and a night out with a friend, and a few bottles of beer, produces a return of his old trouble. This condition in a vast majority of cases is due to an infected prostate that is not cured by injection, irrigations, or the sound, which only relieve the acute con-

dition until the exciting cause reproduces the same results. The presence of a urethral stricture of large caliber, or the endoscope, showing a granular urethra, does not necessaily mean that the relief of this condition perfects a cure. When the stricture has been cut, and the endoscope shows the urethra no longer granular, yet still we have pus in the urine, then we must look elsewhere for the trouble, and usually it will be found in the prostate. Now I am not condemning the use of injections, irrigations or the sound, for they all have their place, but only pointing out the value of prostatic massage in deep-seated gonorrheal infection. The relief given to an extremely nervous patient with vague pains in the pelvis, back and limbs, with a dull, heavy sensation in the rectum, after carefully massaging his sensitive and swollen prostate, is sufficient evidence of the value of the procedure. At the next visit, the first exclamation of the patient is, that you have located the trouble, and he feels greatly benefited. Also the marked improvement in the condition of the urine after the first treatment is very noticeable.

There are various positions in which patients are placed to examine and massage the prostate. I have the patients stand with elbows on seat of a chair, legs straight and feet separated. Use pressure over bladder with left hand, and massage prostate with forefinger of right hand. The use of the rubber-finger cot makes the treatment less objectionable to the patient and more cleanly to the surgeon. The finger should be passed up to the base of the prostate and pressure made as the finger is brought towards the apex. Firm pressure should be made over the entire gland, noting the impression made upon the patient. If he becomes faint limit the examination or massage to a few seconds and make a more thorough massage at the

next treatment, when the patient will tolerate more pressure upon the gland on account of a less sensitive condition due directly to the previous massage. In highly-nervous individuals, or those in whom the gland is very sensitive, massage every fourth or fifth day is as often as advisable. In some cases I use massage only once a week, while in others with urine cloudy, dull heavy sensation in gland, with frequent desire to urinate, I massage every second or third day, if the patient is made more comfortable by such treatment. The amount of pressure made upon the gland, the intervals between the treatments and the length of each séance, must be determined by results obtained in each individual case. When a prostate is massaged, instruct the patient to have some urine in the bladder so that after the treatment the urine can be voided in a glass so as to note what secretion is compressed out of the gland. Always irrigate the bladder after massage with an antiseptic solution so as to cleanse it of any septic material that may be present. Stones or concretions in the gland should be felt for, the condition of the vesicles, and any nodules or other abnormalities noted. The vesicles are above the prostate and lie on the outer side of each vas deferens. Stripping of the vesicles is necessary to remove gonorrheal infection, and the genito-urinary surgeon is called upon to determine if the patient is sterile, by obtaining the semen to note if spermatozoa are present and alive. By massage of the prostate we compress out the infected secretion and stimulate a better circulation in the gland and adjacent diseased structures. Where there is a spasmodic condition of the neck of the bladder and deep urethra, massage relieves the sensitive condition and spasm so that the patient is made more comfortable and irrigation of the bladder is more easily accomplished. To illustrate that sensation is blunted it is noticeable

that a patient can not empty the bladder immediately after massage. Lydston has well said that "sexual neurasthenia embracing bowel inactivity, melancholia, hypochondriasis, and that seldom recognized but frequent condition, male hysteria, are among the results of chronic prostatic disease, which are frequently relievable by proper and systematic massage."

A frequently obscure condition, but one due to a local irritation, abnormal nocturnal emissions and premature ejaculation are frequently benefited or relieved by massage. I recall a case I had a few months ago of a boy sixteen years of age who had wet the bed every night since his birth, and a single massage caused him to pass a week without wetting the bed.

While prostatic massage is indicated in deep-seated infection due usually to gonorrhea, I mention these conditions to show the correcting influence it may have on other irregularities. This measure is not a cure-all, it is a recognized procedure that will relieve some heretofore obscure diseased conditions of the genito-urinary apparatus.

THE USE OF RUBBER-BAG DILATORS IN OBSTETRICS.

By F. G. HODGSON, M.D., Atlanta.

There are various rubber-bag cervical dilators in use at the present time, but I shall only describe in detail this one known as the Voorhees modification of the Champetier de Ribes bag. It is used exclusively at the Sloane Maternity Hospital, New York, where I became acquainted with its use. It consists of a cone-shaped rubber bag attached to a piece of rubber-tubing about a foot long. The junction of the bag and tube is reinforced by an extra piece of rubber. The rubber is made over cloth so as to add to its strength. These bags come in four sizes, and can be obtained at the small cost of $1.50.

The method of use is the following: After a vaginal examination in which the size of the cervix has been determined, the bag is selected which can be inserted into the cervix. If the cervix will not admit one finger, it must be mechanically dilated up to this point. Take for example a case which the cervix only admits one finger. We select the two smallest bags, boil them in water for three minutes, and then place them in one per cent. lysol solution. Then take an ordinary Davidson syringe (or I prefer a Janet syringe) and let it soak in lysol solution for half an hour. The bag should be tested to see if there are any leaks and to determine how much it will contain. The patient is placed in the lithotomy position, the vulva and vagina thoroughly cleansed, then carefully draped

with sterile towels. An anesthetic is rarely necessary except in very nervous or hysterical individuals, and then a few drops of chloroform are sufficient. The cervix is then pulled down with a volsellum. The bag is then folded and clasped in a forceps especially made for the purpose (or a sponge forceps answers very well) and inserted into the cervix for two-thirds its distance. The forceps are then removed, care being taken not to remove the bag also. The bag is then slowly and not forcibly distended with one per cent. lysol solution. This solution is used in order that we may have a mild non-irritating antiseptic solution in case there should be any leakage or the tube should break when pulled upon. I once pulled the tube off at its junction with the bag in trying to dilate rapidly a resistant cervix. After the bag is completely filled the tube is clamped with an artery forceps, and the tube pulled upon to ascertain if it is well placed in the cervix. The tube is then kinked upon itself and tied with a tape. The portion of the tube outside is then wiped off with lysol solution and placed into the vagina and a vulva pad placed on the outside. Or if one wishes to hasten delivery the tube can be left outside surrounded by a towel wet in 1:1000 bichloride solution and pulled upon every fifteen minutes. Some authors recommend that the tube be attached to a weight and hung over a pulley at the foot of the bed. As a rule the best method, and that which most resembles the natural process, is after placing the bag in position and the tube in the vagina, to let the mother get up and walk around, provided, of course, she is in condition to do so. When the bag is discharged through the cervix into the vagina it is to be removed, and as a rule the labor pains will continue and the cervix will dilate in a normal manner; if not, the next size larger bag can be inserted in the manner just described. The

largest sized bag will rarely be indicated and its use should be avoided, for it is so large when distended that it is apt to displace the presenting part. I used it in a case of vertex presentation, and when the bag was expelled it was followed by a prolapse of the cord.

(1) Induction of labor for any cause after the fourth month, e. g., pelvic contracture of a minor degree—to terminate pregnancy a little early before the child becomes too large for the passage. For nephritis, heart disease, phthisis, persistent vomiting, toxemia of pregnancy, eclampsia, chorea, pernicious anemia, tumors of the ovary or uterus, death of the fetus, etc.

(2) Placenta previa: We find these bags of great service here; the cervix is usually dilated sufficiently to admit them, and when in place they not only act as a plug to prevent further bleeding, but they aid in the dilatation of the cervix, which is essential to the delivery.

(3) Prolonged labor: Dr. Tucker, one of the most successful obstetricians who practiced among the "400" in New York, made it a rule that if any of his patients went more than a week beyond the time when confinement was due, he would induce labor by means of these bags. In this way he would avoid the complication of having the child grow too large. If this rule were more frequently adopted many serious complications would be avoided.

Advantages: The other methods of induction of labor are:

(1) Simple ruptures of membranes (Scheele's method). This is uncertain, produces a dry labor, and there is increased danger of infection.

(2) Kause's method by the introduction of a sterile bougie or catheter between the uterine wall and mem-

branes. This method is very good when it works. It is, however, slow and by no means absolutely certain.

(3) Packing cervix and vagina with sterile gauze. This is often used with benefit in placenta previa and in early pregnancy. It is more trouble than the bag method, and as the cervix dilates it does not accommodate itself to the increase in size as the wedge-shaped bag does.

(4) Accouchement force or mechanical dilatation of the cervix. This possesses the great advantage of being the most rapid method. If rapidity is not a great consideration the bags are much safer and conform much more nearly to the normal process.

(5) I only mention the injection of glycerine and other substances into the uterus to condemn them. They are dangerous and uncertain.

Disadvantages: There are two possible disadvantages:

(1) The liability to infection, and this can be avoided by any one well versed in the practical use of asepsis.

(2) There is the possibility of displacing the presenting part if one uses the largest size bag.

Summary: I think that nothing is to be more heartily condemned than meddlesome interferences in obstetrical cases, but there often arises an imperative indication for the induction of labor in the latter months of pregnancy. These bags offer the best and most natural means of dilating the cervix and causing uterine contraction. Their careful use in properly selected cases is attended with most gratifying results.

ORIGIN OF TUBERCULOSIS IN CHILDREN.

By ROBERT W. HYNDS, M.D., Atlanta.

The questions considered in the following paper have been so thoroughly discussed that it would seem to be useless to call attention to them again, yet the vital importance of the subject, and the fact that little organized effort has been made in Georgia to prevent infantile tuberculosis, I believe warrants me in presenting a brief review of some of its phases.

PREVALENCE.

Tuberculosis in children is a more frequent occurrence than is commonly supposed. Cornet, Simons, Schwer and Bolz, in 2,447 autopsies in children under ten years of age, found tubercular lesions in 23.93 per cent.; Mueller, out of 426 autopsies, found tuberculosis in 23.36 per cent.; Jacobi, out of 1,045, found 14 per cent. tuberculous; Bollinger, out of 500 autopsies in children under fourteen, discovered tuberculous lesions in 218; Still, in 796 autopsies, found tuberculosis to be the cause of death in 32.8 per cent. Fisher says that one-third of the deaths in childhood are due to tuberculosis in one form or another. The disease is most frequent in children under four years of age. The bones, joints and lymph-glands are the parts most frequently affected. The mortality from infantile tuberculosis in the South is very high, owing to the large negro population; the majority of negroes dying under five years of age show tuberculous

lesions. Botz, in 2,576 autopsies on children, found that 27.8 per cent. under one year of age died with tuberculosis.

The assertion of Fisher that it is a rarity to find primary intestinal tuberculosis in children is not susceptible of proof; in fact, the opposite is nearer the truth. Wegener found primary tuberculosis of the intestine and mesenteric glands in 12½ per cent. of 600 autopsies. Hoff found primary tuberculosis of the digestive tract in 16.6 per cent. of 15,000 autopsies, in which there was no involvement of the lungs. Raw states that it is rare to find phthisis pulmonalis as a primary affection under ten years of age. Branson, in a large series of autopsies in children, found that 20.9 per cent. died of abdominal tuberculosis. Price Jones' findings were 28.5 per cent.

The percentage of tuberculosis in children varies widely in different localities. Its great prevalence in children during the milk-drinking age, and the predominance of other types than the pulmonary seem to indicate a bovine origin. Out of three hundred cases of tabes mesenterica observed by Raw, not one was in a child fed entirely upon breast-milk, but all of them wholly or in part had been given cow's milk. In communities where the milk was fed boiled or pasteurized, the percentage of intestinal tuberculosis is less than in those where it is fed raw. Helle cites an instance of this in the greater prevalence of tuberculosis around Keil than in Berlin.

TRANSMISSIBILITY.

The sweeping assertion of Koch that human and bovine tuberculosis were so different in their nature that infection of human origin could not be transmitted to cattle, and that man had small reason to fear infection from cattle, was so contrary to the conclusions of many experi-

menters that opposition was immediately aroused and investigation of the subject taken up with renewed activity.

The theory of Klencke, in the early forties, and of Villemen in 1865, as to the unity of human tuberculosis and that in the lower animals, was strengthened in 1868 by the demonstration of Chaveau that cattle could be infected by tuberculosis material from man. The work of Chaveau was substantiated in 1879 by Bollinger. The experiments of other investigators led to the same results, and the discovery of the bacillus tuberculosis by Koch in 1882 gave force to their conclusions.

Since the publication of Koch's paper in 1901 the investigation of the subject has been carried on by Nocard, Arloing, Fibiger and Jensen, Max Wolff, Hamilton & Young, Kossel, Theobald Smith, Ravenal, Behring, and others, all of whom succeeded in transmitting human tuberculosis to cattle. This phase of the question is capable of direct experimental proof. Out of nineteen calves inoculated by Hamilton & Young with tuberculosis material from man, fifteen developed the disease. The Imperial sanitary office of Germany reported the inoculation of sixteen calves, of which number four developed tuberculosis. Many successful results have also been obtained in this country in the Bureau of Animal Industry by Mohler and DeSchweinitz.

Fibiger, in a review of the work that had been done on this phase of the subject, reported sixty-one attempts at inoculating cattle with human tubercle bacilli. Forty-one of these were successful. Out of eighty-one animals experimented on a positive result was obtained in fifty-one. His own extensive experiments were confirmatory of the results obtained by others.

The transmissibility of bovine tuberculosis to man can not be established by direct experimentation, but a suffi-

cient number of cases of accidental inoculation have taken place to prove this beyond a doubt. Ravenal reports four cases occurring in the laboratory of the State Live Stock Sanitary Board of Pennsylvania, and as to infection from the intestine, we have nearly twoscore instances reported by such reliable observers as Stand, Gosse, Von Ruck, Ollivier, Law, Ebers, Bang, and Rivel. In addition to the above, the post-mortem evidence is admissible on this point. Theobold Smith first pronounced a case of intestinal tuberculosis in a child to have been produced by the bovine type of bacilli. DeSchweinitz reported two cases, Fibiger and Jensen three, and the Imperial sanitary office of Germany several cases.

Tscherming, Pfeiffer and Law each reported cases of veterinary surgeons who were inoculated directly from tuberculous cows. Gosse, Demine and Bouardel reported numerous cases of children who were undoubtedly infected by drinking milk from tuberculous cows. Lassar describes several cases of persons who came in contact with tuberculous cows, contracting superficial tubercular lesions.

The British Commission appointed to investigate human and animal tuberculosis found, after a careful investigation, that the tuberculosis produced in cattle by material from human and bovine sources was identical in its general effect and in detail. Wolbach & Ernst, experimenting with tuberculins, came to the conclusion that there was no difference in the specificity between tuberculins made from human and bovine bacilli, and that there was no essential difference in the disease processes caused by bacilli from these sources. Not only has the communicability of tuberculosis between various species of mammals been demonstrated, but fish, frogs, and other

cold-blooded animals have been infected with material from both human and bovine sources. Not all of the above attempts to inoculate an individual of one species with bacilli derived from another, or even between individuals of the same species have been successful, owing to the difference in the virulence of bacilli derived from various sources and the wide variation in the resisting power of individuals and species.

TYPES OF BACILLI.

The study of the difference in cultures of the tubercle bacilli of bovine and human origin has been exhaustively conducted by Theobold Smith. They differ in the appearance of the growth on culture media, the rapidity of growth and in their staining characteristics, but most of all they differ in their virulence. The virulence of the tubercle bacilli of bovine origin is much greater than that of the human bacillus.

These differences would tend to throw some doubt on the transmissibility of the disease had it not been demonstrated that the morphology of the tubercle bacilli underwent marked changes with change in the culture media. If these could occur in cultures they would probably also occur if introduced into the bodies of animals of different species.

Pearson and Ravenal and Hamilton and Young succeeded in greatly increasing the virulence of human tubercle bacilli by successive passages through calves. Mohler succeeded in increasing the virulence of human bacilli for cattle by passing them through a series of rabbits. By passing tubercle bacilli through a series of cats he found that in addition to being more virulent their morphological appearance was also changed. Not only does the virulence of tubercle bacilli from different species

show great variation, but the virulence of cultures from the same species is not constant. The German Tuberculosis Commission found four degrees of virulence in thirty-nine cultures from human sources. We may, therefore, consider it established that neither the morphological and cultural characteristics or the virulence of the tubercle bacillus are fixed, but depend largely upon their environment.

It is probable that bacilli of bovine origin when introduced into the human body in the course of time undergoes metamorphosis and presents a characteristic of human bacilli. In four cases of generalized tuberculosis in infants, DeSchweinitz found two cultures identical with bovine bacilli. The constant introduction of bacilli of the bovine origin possessing a high degree of virulence into the human body is thought by Salmon to be the means of keeping up the disease in the human species, for the human organism seems to have the power of attenuating tubercle bacilli.

SOURCE OF INFECTION.

The part that the various routes of infection play in children is a subject on which there is a wide difference of opinion, and one not capable of exact determination. Raw believes that primary intestinal tuberculosis and tabes mesenterica are of bovine origin and are conveyed by milk. Osler considers the respiratory as a most frequent point of infection in infants. Woodhead believes that milk is the usual vehicle of infection in intestinal and mesenteric tuberculosis. Still thinks that tuberculosis of the intestine is often secondary and is caused by the swallowing of sputum. In 127 cases of tuberculosis in children he found tubercular ulceration of intestines in forty-three, and in one hundred cases the glands connected with

the intestinal tract were tuberculous. Delipine states that the most frequent mode of infection is through the intestines. In England the general average of primary intestinal tuberculosis is about twenty-five per cent. In Germany, according to Heuppe, from twenty-five to thirty per cent.

The problem of determining the route of infection is one of great difficulty, owing to the fact that the location of the oldest lesion does not always indicate this. The lungs may be involved in cases which were infected by feeding and the intestine show no lesion. Dobronklonski first stated that bacilli could pass through an intact intestinal mucosa. Sidney Martin also established the occurrence of infection through mucous membrane without surface lesions. Nicholas and Dercas substantiated this statement, determining that the chyle collected from the thoracic duct of guinea-pigs fed an emulsion of tubercle bacilli was fatal to dogs. Ravenal gave a single dose of tubercle bacilli through a stomach-tube to dogs. The dogs were afterwards killed and tubercle bacilli found in the chyle and glands and there was no intestinal lesion. The most favorable medium for infection is a fatty food, which condition is fulfilled by milk. The primary infection of the lungs is easily explained by the fact that the bacilli pass into the blood stream through the thoracic duct.

One of the most frequent channels of infection in children is through the tonsils. This mode of infection has been considered by Dieulafoy, Woodhead, Hamilton, and others. Hugh Walsham, in thirty-four post-mortem examinations, found the tonsils tuberculous in twenty cases. The route of infection seems to be as follows: Tonsils, cervical and mediastinal glands, thence to the thoracic duct, right side of heart and lungs. A frequent primary

focus of tuberculosis in children is the bronchial glands. The lungs may be infected secondarily, directly from these, or the softened gland may ulcerate into trachea or bronchi, and the bacilli be drawn into the lungs. The tonsils are infected in several ways: the bacilli may be inhaled, they may be absorbed in some point in the pharynx, tonsils or esophagus, or they may be absorbed from the intestine and spread from the mesenteric gland upward.

Aufrecht believes that the lung tissue is never infected by the penetration of a mucous membrane of the respiratory tract, but that the main portal of entry is the mucous membrane of the digestive tract.

Behring argues against primary infection by way of the respiratory organs, and asserts that in order to have pulmonary tuberculosis to follow infection with inspired tubercle bacilli it is necessary to have constitutional changes in the organism due to a previous infection. Behring states his conclusions as regards consumption in the following words: "The milk fed to infants is the chief cause of consumption." In experiments on guinea-pigs he found that very young animals became tuberculous after a single feeding with the bacilli, and from this he concluded that the young of all mammals were very susceptible to infection through the intestine because of a lack of protective agencies in the alimentary system which are developed later in life. In this connection it might be well to mention the statement of Welch that one of the functions of the mother's milk was in transferring proper antibodies to the child, increasing the resisting power of the infant to infection. Behring investigated the intestinal mucous membrane of the young in order to discover why so little resistance was offered to the passage of bacteria. He found that the mucous membrane

in infants possessed no continuous epithelial covering, and that the gland-tubes of the ferment-producing glands are little if at all developed. He states that although phthisis pulmonalis may not develop until adult life, the real beginning of the infection dates back to infancy when the disease germs were first introduced into the body. He does not state that milk is the only source of infection, but that the bacilli-laden particles of sputum scattered in coughing gain entrance to the nose and mouth of infants and from there reach the intestinal mucous membrane. His main conclusion is "that an infantile tuberculous infection predisposes to pulmonary consumption."

The old assertion that the lungs are the primary seat of tuberculosis in man, the infection being conveyed by inhalation, is not susceptible of proof, and is no more probable than the assertion of those who have gone to the other extreme and attributed tuberculosis mainly to the ingestion of infected food. In considering this question, we are at present wandering in the vague domain of theory, but it seems, in the light of our present knowledge, that the digestive tract is the most frequent route of infection, the two main ports of entry being the tonsils and the intestines. We have also underestimated the importance of glandular tuberculosis contracted in childhood to pulmonary tuberculosis in later life. Baumgarten holds that the tubercle bacilli can remain latent in the tissue for a long period of time until, for some reason, the resistance is lowered and tuberculosis results. The cells of the lungs lending themselves most readily to influences of a trophic, toxic or traumatic character become the seat of a secondary infection. The portions of the lungs which are first affected are much more readily en-

tered by the bacilli through the blood-stream than through the air-current.

The evidence as to the communicability of bovine tuberculosis to infants is so conclusive that there is no longer any room for doubt. The only point in question is as to the comparative frequency of this mode of infection. This source of infection is much more frequent than has been generally supposed. Certainly we have underestimated the frequency of abdominal tuberculosis in children. It is our duty to guard against tuberculosis infection in every way possible, and to insist on milk absolutely free from tubercle bacilli for infant feeding. The cows should be tested with tuberculin, and those which react positively should be separated from the herd. The statement that only milk from cows suffering from tuberculosis of the udder is infected, acording to the investigations of Mohler, is incorrect. Twelve out of fifty-six cows examined by him which showed no sign of tuberculosis of the udder gave milk containing tubercle bacilli.

It is to be hoped that the immunizing procedure of Behring, that is, the prevention of tuberculosis in cattle by the inoculation of a protective virus which is now being extensively tried in Europe, will prove a success, and we can remove this source of infection. Tuberculosis amongst the negro children of the South can be diminished to a large extent by improving the sanitary conditions of their surroundings.

ETIOLOGY AND PREVENTION OF PERINEAL LACERATIONS, WITH SPECIAL REFERENCE TO THE SHOULDERS.

By ARCHIBALD SMITH, M.D., Atlanta

Perineal lacerations of ordinary degree, though not usually considered serious complications of labor, are perhaps, on the whole, the most troublesome that we have to deal with.

The great trouble caused by them is due in part to their frequency, and also to the fact that an open wound in this locality, especially if not properly treated, greatly increases the danger of sepsis, not to mention the increased liability to displacements of the pelvic viscera. The frequency of perineal lacerations has been stated as ranging all the way from thirty-five per cent. in primipara and ten per cent. in multipara, in some of the large maternity clinics, down to one per cent., or even none, in the practice of some men who claim to have delivered large numbers of women, but probably never had any hospital experience.

Two comments might be made, in passing, on the latter statement—first, that it is not based on the observation of facts, and second that it is largely from the patients of such men that the gynecologist derives his perineorraphies, and Lydia E. Pinkham her customers.

The proper handling of the perineum, though much less spectacular in appearance, is, nevertheless, more important to the average practitioner than the performance

of a Cæsarean section, for he will seldom encounter a case where the latter is required, and when he does he will, as a rule, find it both practicable and advisable to summon the aid of a man skilled in abdominal surgery. But he will have an opportunity to show his skill or lack of skill in handling the perineum at almost every labor he may attend.

Briefly and in general terms, lacerations of the perineum may be said to be due to the fact that the parts of the child are larger than the vulvar orifice through which they must pass, and in order that passage may take place, the tissues surrounding this orifice must be either greatly stretched or sustain a solution of continuity.

Therefore, in avoiding perineal lacerations, we must, as far as possible, bring the smallest diameters of the child to coincide with those of the pelvic outlet during their passage through it, avoid direct impact of abrupt parts, like shoulders, against the perineum, and last, but not least, allow ample time for enlargement of the vulvar orifice to take place by stretching instead of tearing.

In delivering the head all of these points must be taken into consideration, and as the anterior positions of the occiput are most favorable to them; when a posterior position is diagnosed before engagement of the head an attempt should be made to convert it into an anterior position by external manipulation and postural treatment.

Now suppose the head to be at the perineum in the L.O.A. position, and making the usual progress: our chief concern will be to regulate its rate of progress and degree of flexion.

When a pain occurs the head should be allowed to advance till the perineum is well stretched, and then firmly held in position with the thumb and forefinger till the pain passes off. If after this the perineum remains thin

and white, the head should be pushed back enough to allow reestablishment of the circulation, which keeps up the vitality and elasticity of the parts, thus enabling them to stand greater dilatation. An anesthetic may be used here with great advantage, both to control the contractions and relieve the suffering of the patient. If an anesthetic is not thought advisable, or before it is begun, the old method of making the patient open the mouth and breathe rapidly, during a pain, will greatly assist in regulating the progress of the head.

Some advise crowding the head up under the symphysis, but while this gets the occiput away from the perineum it also is apt to produce extension too soon and bring the head out by some of its larger diameters. It is well to allow the occiput to extend and even to push it forward during the last few pains, but the nape of the neck should appear well under the symphysis and the anterior fontanel, over the perineum, before any marked extension is brought about. When the head has reached this point it should be delivered between the pains, by extension, keeping the suboccipital region pressed well against the symphysis and bringing it out of the vulva by a motion of extension and rotation on this as a fixed point. This motion may be brought about by forward pressure on the vertex, and also pressure with the fingers through the perineum exerted against the brows, cheeks and chin, but in this care must be taken not to injure the nose or eyes.

The rationale of this method will be apparent if we will consider, for a few moments, the diameters of the head, which must pass through the vulva by this motion, the largest of which is the S.O.F. of 10.50 cm. against the O.F. of 11.75 and O.M. of 13.50 cm. if the head came out in full extension, with the occiput under the symphysis as the chin or frontal region passed the perineum. It

is also evident that if partial extension occurs the strain will be greater according as the point under the symphysis approaches the occiput.

Even when the head engages with the occiput posterior it will generally undergo spontaneous anterior rotation, but if this does not occur it can be often brought about by inserting the single blade of the forceps into the vagina to furnish resistance, or by using the fingers in the same manner, and at the same time pressing forward on the occiput. External pressure may also be tried by placing the fingers on the perineum in the region of the anus, and on the side opposite that to which the head should rotate. When these means fail to produce anterior rotation, the use of forceps in skilled hands may aid in preserving the perineum either by directly rotating the head or by lifting it over the perineum. If improperly applied, however, they are capable of doing great damage to both mother and child, and should be avoided if possible.

PERSISTENT POSTERIOR POSITIONS OF THE OCCIPUT.

Birth of the head in a posterior position may occur by one or two similar mechanisms, though the effect on the perineum is quite different. First and most favorable, a point a little anterior to the large fontanel strikes the symphysis and the posterior part of the head is elongated, and gradually comes out over the perineum to the suboccipital region after which the head is extended and pressed back on the perineum while the face appears under the symphysis.

In the second and, fortunately, less common mechanism there is greater extension and the base of the nose impinges against the symphysis instead of the point near the fontanel, otherwise the mechanism is much the same, except that the O.F. diameter 11.75 must pass the vulva instead of the S.O.F. diameter of 10.50 cm., thereby

greatly increasing the difficulty of delivery and danger of laceration.

These positions should be carefully looked out for, and when diagnosed great care should be taken to maintain a good degree of flexion by inserting the fingers behind the occiput and pressing forward, also by retarding as much as possible the advance of the frontal region, which may also be pressed against the symphysis with advantage, just as the anterior fontanel appears. This position should be maintained if possible till the nape of the neck appears over the perineum, when the face may be born much as in an anterior position of the occiput, except that the head rotates around the sub-occipital, which is resting on the perineum instead of the symphysis.

The prognosis for the perineum in breech presentations is not favorable, because the soft body does not thoroughly dilate it, and when the head reaches this point it must be delivered at once, without allowing further time for dilatation. A child presenting by the breech should always be brought down with the dorsum anterior if possible, so as to prevent the chin from catching under the symphysis.

When the occiput is anterior, if we bear in mind the various diameters of the head, we will readily see that the same principles may be applied as in delivering the vertex, namely, to keep the head well flexed till the sub-occipital region appears under the symphysis, and then deliver the features from under the perineum in reverse order. This is best done by Wigand's or Moriceau's method, both of which keep the head flexed by the fore-finger in the mouth. The former is usually preferable, as the pressure on the head with the free hand aids in maintaining flexion, while the free hand in Moriceau's method grasps the shoulders and makes traction on the neck. If this, however, is supplemented by pressure on the head by an assistant it is most efficient of all.

If the occiput comes down posteriorly it will usually be necessary to raise the body of the child and rotate the head and neck from under the symphysis on a point near the larynx. This requires great care not to injure the child by too firm pressure on the larynx, and it is better to transgress a little on the perineum than on the throat of the child.

In cases where it becomes evident that the vulvar orifice will not enlarge enough to admit the passage of the head without a solution of continuity of surrounding tissues, the well-known operation of episiotomy may be performed. This has the advantage of substituting for the perineal laceration a clean-cut incision on either side of the vulva, which can be easily repaired, divides less important structures and is less in the way of infection.

THE SHOULDERS.

Many writers on obstetrics pass over the question of delivering the shoulders with a very few lines, some simply directing that the head should be supported by the hand and the shoulders allowed to take care of themselves, while others even say that the older writers laid too much stress on them as a factor in perineal tears. However that may be, it seems to me that the pendulum has swung too far in the opposite direction, and the matter does not now receive the attention which it merits. Some observation has led me to believe that more lacerations are either caused, or greatly augmented, by the shoulders than is generally taught. Of course, satisfactory examination of the perineum can not be made between the delivery of the head and shoulders, but if one will notice as carefully as possible the condition of the perineum, just after the head is delivered, and then when delivery is complete, he will find a greater increase in the size and

number of tears than can be accounted for by better opportunity for observation.

The student is usually advised against dragging the shoulders through the vulva after the head has been born, on account of injuring the perineum, and with this I heartily concur, but, nevertheless, my opinion, after some experience, leads me to believe that more or less active treatment, judiciously applied at this stage, is very advantageous, and will reduce the number and degree of perineal lacerations to a considerable extent.

Delivery of the shoulders may be considered under three heads, according to whether both arms are extended along the sides of the chest, one flexed across the chest with the hand in the region of the neck and the other extended, or both arms flexed with the hands near the neck. When both arms lie extended the delivery of the shoulders is easier than in the other positions, and less liable to cause laceration if left to nature, because we do not have the size of the hands or forearms added to that of the shoulders during their passage through the vulva.

An advanced position of the hands and forearms can usually be diagnosed when the fingers are passed around the neck in search of the cord, or by inserting the finger along the child's chest after the cord has been removed from the neck, or may at times be visible before the birth of the shoulders. If the forearms are not felt across the chest the posterior shoulder can, as a rule, be most easily delivered first. When an anesthetic is not used this should, if possible, be done between the pains by pressing the neck lightly against the symphysis, and the anterior shoulder upward and backward behind the symphysis, thus retarding its progress till the posterior shoulder is born. This proceeding will carry the posterior shoulder forward and cause it to impinge much less directly on the

perineum, and it will at times slip from under it without further assistance, but if this does not occur, the forefinger may be inserted into the vulva, the arm and shoulder carried forward, and then grasped with the thumb and finger and lifted over the perineum. Hooking the finger into the axilla is not generally advisable, as there is danger of injuring the structures in the axilla, and besides it tends to push the point of the shoulder further out against the perineum. If this is done it should be from behind and the force should be chiefly against the thorax. Care must also be taken in grasping the shoulder not to cause too much pressure and fracture the clavicle. This method has the disadvantage of adding the thumb and finger to the bodies which must pass through the vulva, but this, I believe, is more than counterbalanced by the fact that the shoulder is lifted up and the perineum pushed away from it.

If the anterior shoulder does not catch on the symphysis and is coming down first, the posterior one should be carefully retarded by holding it back with one hand and exerting a careful downward traction on the neck so as to deliver the anterior shoulder first, then after pressing the arm and shoulder a little forward, so that they shall not come directly under the symphysis, the body of the child is brought well up against the symphysis and the posterior shoulder handled much the same as in delivering it first, or supported by the hand placed over the perineum.

When the anterior arm is flexed and the posterior extended it will usually be best to deliver the anterior shoulder and arm first, when the progress of the posterior shoulder can be arrested without undue force. This can usually be done by a moderate backward and downward pressure on the posterior shoulder and neck, which at the same time should disengage the anterior shoulder from

under the symphysis and permit of its delivery. The posterior shoulder should still be held back and the anterior arm and forearm delivered by forward pressure on the former and traction on the latter. If the posterior shoulder is now released it will generally be born spontaneously, but if not can be delivered by raising the head and neck so as to bring the thorax well against the symphysis, and, if necessary, grasping the shoulder as directed above. These manipulations must be done between the pains, for sudden delivery with a sharp pain would almost certainly cause laceration, especially as the elbow was being born. The perineum may be supported here by forward pressure applied over its surface with the outstretched hand, as directed sometimes for the head. The objections against this do not hold good here, for the hand is a real support, inclining the shoulder upward and forward as it should go, and preventing the tendency it has to plow through the perineum; besides, this pressure for the length of time the shoulder requires to be born does not seriously interfere with the circulation of the perineum or reduce its vitality.

If the anterior shoulder can not be delivered first, due to engagement under the symphysis and rapid progress of the posterior shoulder, the same method of procedure may be followed as outlined for delivery of the posterior shoulder first with both arms extended.

Where the anterior arm is extended and the posterior flexed it will usually be wise to deliver the posterior shoulder first, much as may be done when both arms are extended, and then deliver the corresponding arm. This allows the hand and arm to be born along with what might be called the cervico-acromial diameter, extending from the base of the neck on one side to the shoulder on the other. This will obviously cause less strain if care-

fully done than for the hand and arm to be born at the same time as the bisacromial diameter, which would be the case if the anterior shoulder were delivered first. If any difficulty is experienced in delivering the posterior arm before the anterior shoulder it should be left alone, for the abrupt point of the shoulder has now passed the perineum and the pressure exerted on it is by the soft tissues of the arm and thorax.

If there is a strong tendency for the anterior shoulder to proceed ahead of the posterior, it may be well to adopt the method of procedure suggested for the same condition when both arms are extended.

When both arms are flexed across the chest we have the condition most likely to cause laceration if left alone, for the perineum is likely to be distended by both shoulders and arms at the same time. About the most favorable thing that can happen at this time is for the anterior shoulder to be disengaged from the symphysis and delivered ahead of the posterior, after which the anterior arm may be delivered, thus allowing the anterior side of the thorax to come in contact with the symphysis and subpubic ligament, and relieving the perineum of considerable strain and allowing the posterior shoulder to be delivered in a manner already described.

When the anterior shoulder is impacted on the symphysis and the posterior shows a strong tendency to advance, the same method of procedure may be adopted as when the posterior arm only is flexed and the anterior shoulder is caught under the symphysis.

TYPHOID FEVER.

By F. M BRANTLY, M.D., Senoia.

After over sixty years wrestling with this insidious disease, I trust that this Association will allow me the privilege to venture some of my convictions so dearly obtained.

Because of want of a more thorough knowledge of the pathology of this disease, the fight against it has been like one beating the air.

Conforming treatment with theory has been about all there was in it; the expectant was the general plan, but the *expector* was a late comer; like the man who locked his stable door after his horse was stolen.

It is amusing to observe the extremes in treatment of typhoid, and it is remarkable how sincerely and tenaciously some practitioners hold to their special fads. I was amused to hear the utterances of one in high authority say that all he wanted in cases of typhoid was plenty of buttermilk and brandy.

Like the weaver's shuttle, the treatment runs from extreme to extreme. And thus it goes from bad to no better, and we can only hope for improvement when this disease is better understood.

We have some pioneers in the profession who are shedding some light on the *causes* of this disease. Such men as Manson, McCallum, Ross and Laveran have brought to light facts that are revolutionizing the therapy that will

change the practice, so far as this disease is concerned, and perhaps others.

These pioneers in the profession have settled the fact that typhoid fever is caused by microbes and that they are found abundantly in the blood corpuscles in this disease. Taking a hint from these facts, some of the profession propose and do practice what they call elimination and abortive treatment, which they promulgate as a success.

So all new departures must wait their day and time for vindication.

2. BACILLUS TYPHOSUS.
a. Agar Culture. *b*. Potato Culture.

3. BACILLUS TYPHOSUS.
Bouillon Culture showing Flagella.

Miasmatic or malarial fevers are also microbic and are destroyed by the antidote, quinine, by which means it is cut short.

But quinine don't seem to affect the typhoid bacilli, so it behooves us to hunt out other remedies. First, let us look for *cause* and *effect*, then fashion our remedies.

Typhoid fever is an infectious disease, caused by microbes generated from animal débris or effluvia, and is found to exist any and everywhere that these deposits are found, regardless of season or clime. Close search always reveals the nidus from whence the microbe comes. They

travel in the air as far as the scent of the effluvia goes, *and but little further, if any*. Hence they find their way into the system through all the inlets, but mainly by the air passages and esophagus, or by either. When by the lungs, they are soon to be seen in that notable rash on the breast, and when by the esophagus, tympanites of the bowels is significant, followed by all the various mishaps so constantly seen. And when by the lungs, we often have pneumonic complications.

The microbe of typhus soon finds its way into the blood, and is carried the rounds, consuming the vitality and the carbon of the blood, producing fever, penetrating the glands, where they have a safe lurking-place, because of the less blood circulation, as is demonstrated by the abscesses, etc., often seen. The absorbent glands especially are one of their main resorts. Besides, they prey upon the inner coats of the intestines, devastating large patches, even penetrating at times by perforation, which is demonstrated by autopsy.

The impure condition of the blood may account for this stupor and cerebral disturbances, whether it be from the brain or its peripheries.

From the foregoing, my treatment may be anticipated. The cause being settled (if settled at all), of course the remedial measures should conform to the facts in the case.

The main thing in the treatment is to know right early what you have on hand—"be sure you are right, then go ahead"; mistakes in diagnosis may lead to disaster. Antiseptics is the treatment early and late. I know nothing better than calomel to begin with, in very small doses, so that it can be absorbed and reach every part of the system. One-sixteenth to one-fourth grain doses every three hours while *awake*, for two or three days, may do to begin with, to be repeated later on should it be indicated.

Woodbridge's treatment comes in well after the calomel or any other efficient antiseptic.

I mean that the patient must be backed up by antiseptics, as the fight is between vitality and bacillus; the benefit must be for vitality, or the battle is lost. As the carbon and vitality of the blood is being constantly consumed by the fever or its causes, this carbon must be substituted, and I know of nothing better or half so good as whiskey or brandy judiciously managed, just enough to supply waste and no more, which, in my experience, is a half teaspoonful every three hours, straight along and never let up until the fever entirely subsides. It reduces the temperature and pulse in a day or so, keeping them down as long as given. It would seem that such small doses as a half teaspoonful could not produce the effect that I ascribe to it, but years of constant tests make it a settled fact with me; we only want enough to constantly supply the carbon consumed. More than that would prove a stimulant and elevate the temperature and pulse, a mistake too often made by excessive doses. Any one not experienced with the remedy would be astounded at the results. Even ten drops, when given every two hours, will do the work claimed for it.

I believe that calomel and brandy, when handled as before indicated, will, if tested at the beginning of fever, abort it. I back my convictions upon tests often made. A patient whose pulse is 120, and temperature 103½, by the use of whiskey or brandy as directed, will, in twenty-four to thirty-six hours have a pulse and temperature both below 100, and remain down as long as the remedy is given, but if the whiskey be left off too soon the fever will return.

It is to be lamented that typhoid fever is so insidious

in its advent that the main time for action has passed before a correct diagnosis is found. Some deleterious treatment is given, causing many fatal cases as well as perplexity to the doctor.

This disease seems to be always on the lookout for any weak point, and is sure to strike the most vulnerable part, producing complications. Nature has provided abundantly with antiseptics. Listerine is a good one, made of thymol, eucalyptus, baptisia, gaultheria, menthol, ammonia and benzo-boracic acid. There is no lack of therapy. I only insist on saturating the system to its capacity with these remedies outside of toxemia.

The side issues are worthy of tests such as enemata, once a day, in lieu of cathartics and for riddance of deleterious deposits. And ablution of the skin, as St. James directs, or with sterilized water with boracic acid, enough to keep the skin healthy, to prevent blebs and boils as also to serve as an antiseptic.

In treating this disease good practical common sense is more to be depended on than books, because the books only give an outline and differ radically, according to special views of the author. To prevent infection, a daily change of raiment and good ventilation must be had. Unless care is taken the attendants are likely to be infected, and thus whole families will take it. With good sanitation this disease would be a stranger. In fact, I believe it can be driven from any community by sanitation. Typhoid bacilli, one of the toxemia order, was first discovered by Eberth, and afterwards in 1868 was more fully explained by Gaffky. These toxines are evidently the cause of typhoid fever. Dr. Mouser, of San Francisco, has demonstrated that bacilli typhosa succumbs to borolyptol in two minutes, a safe, effectual and non-toxic remedy.

CONSTITUTION AND BY-LAWS

OF THE

Medical Association of Georgia.

CONSTITUTION.

Article I.—Name of the Association.

The name and title of this organization shall be The Medical Association of Georgia.

Article II.—Purposes of the Association.

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Georgia; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

SECTION 1. This Association shall consist of Members and Delegates.

SEC. 2. MEMBERS. The members of this Association shall be the members of the component county medical societies, to which only white physicians shall be eligible.

SEC. 3. DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), *ex officio*, the President and Secretary of this Association.

ARTICLE VI.—COUNCIL.

The Council shall consist of the Councilors, and the President and Secretary, *ex officio*. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.

ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate sections, and for the organization of such Councilor Dis-

trict Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component societies.

ARTICLE VIII.—SESSIONS AND MEETINGS.

The annual meetings shall take place on the third Wednesday in April, and at such place as shall be designated by the Association.

ARTICLE IX.—OFFICERS.

SECTION 1. The officers of this Association shall be a President, two Vice-Presidents, a Secretary-Treasurer, and eleven Councilors, one from each Congressional district.

SEC. 2. The officers, except the Secretary-Treasurer and Councilors, shall be elected annually. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged, viz.: the Councilors for the First, Second, Third and Fourth districts for three years; those for the Fifth, Sixth, Seventh and Eighth for two years; those for the Ninth, Tenth and Eleventh for one year. The Secretary-Treasurer shall be elected for a term of five years. All these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Association shall be elected by the Association by ballot and without nomination, at three o'clock on the last day of the annual session, and no person shall be elected to any such office who is not in attendance upon that annual session, and who has not been a member of the Association for the past two years. If there is no election on the first ballot, the three names receiving the highest number of ballots shall be voted on, the other names being dropped. If there is no election on sec-

ond ballot, the two names receiving the highest number of ballots shall be voted on until election occurs. Delegates to the American Medical Association shall be elected at the same time and in the same manner.

ARTICLE X.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall not exceed the sum of $3.00 per capita per annum. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XI.—RATIFICATION.

The House of Delegates shall submit all questions before it to the Association for ratification.

ARTICLE XII.—THE SEAL.

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XIII.—AMENDMENTS.

Any amendment that may be offered to the Constitution shall lie over until the next annual meeting; and for its adoption at such meeting, shall require a two-thirds vote of all present and voting.

BY-LAWS.

Chapter I.—Membership.

Section 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be *prima facie* evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified, by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that session. No member shall take part in any proceedings of an annual session until he has complied with the provisions of this section.

Chapter II.—General Meetings.

All registered members may attend and participate in the proceedings and discussions of the General Meetings. The General Meetings shall be presided over by the President or by one of the Vice-Presidents.

Chapter III.—House of Delegates.

Section 1. The House of Delegates shall meet at two p.m. on the day before that fixed as the first day of the

annual session. It may adjourn from time to time as may be necessary to complete its business; provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for each fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate. Should the regular delegate from any county not be present at the meeting, the President shall appoint a substitute from that county to act.

SEC. 3. Twenty delegates shall constitute a quorum.

SEC. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public, in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the

same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Sec. 8. It shall divide the State into Councilor Districts, one for each Congressional district, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such district societies.

Sec. 9. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Chapter V.—Duties of Officers.

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-President shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Vice-Presidents in their order shall succeed him.

SEC. 3. The Secretary-Treasurer shall give bond in the sum of $1,000. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the Treasury only on a written order of the President.

SEC. 4. The Secretary-Treasurer shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record-books. He shall be *ex officio* Secretary of the Council. He shall be custodian of all record-books and papers belonging to the Association. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, with the approval of the Association, and shall make an annual report to the Association. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment and collect the same. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Association.

Chapter VI.—Council.

Section 1. The Council shall meet on the day preceding the Annual Session, and daily during the Session, and at such other times as necessity may require, subject to the approval of the President. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer and peacemaker for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component societies where none exist; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, but this shall not be construed to include his expenses in attending the Annual Session of the Association.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It

shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final, when ratified by the Association.

SEC. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

SEC. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Secretary-Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Secretary-Treasurer and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary-Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VII.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional influence so as to promote the general good of the community in local, State and national affairs and elections.

Sec. 4. The Committee of Arrangements shall be appointed by the component society in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Chapter VIII.—County Societies.

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organ-

ized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the Council and shall be signed by the President and Secretary of this Association. The Association shall have authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 4. Only one component medical society shall be chartered in any county.

SEC. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Association, every reputable and legally registered white physician who does not practice or claim to practice, nor lend his support to, any exclusive system of medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final, when ratified by the Association.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors in district and

county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name, on request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic effort shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of this Association at least ten days before the Annual Sessions.

Sec. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in

the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

SEC. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association each year thirty days before the Annual Session.

SEC. 14. Any county society which fails to pay its assessment, or make the report required, on or before April 1 of each year, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

CHAPTER IX.—MISCELLANEOUS.

SECTION 1. No address or paper before the Association shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

SEC. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read.

SEC. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with this Constitution and By-Laws.

CHAPTER X.

The present membership of the Association shall constitute the nucleus in their respective counties for the or-

ganization of county societies. They shall have a preliminary organization and invite all reputable white physicians in their county to join them in forming a permanent organization. At the meeting for permanent organization they shall elect officers and adopt a Constitution and By-Laws, the same not to conflict with that of the State Association. Those counties not now having membership in the State Association may call a meeting of the regular white physicians, organize a society and secure a charter from the Secretary of the State Association.

Chapter XI.—Amendments.

These By-Laws may be amended at any Annual Session by a majority vote of the Association, after the amendment has laid on the table for one day.

ROLL OF MEMBERS

OF THE

Medical Association of Georgia

1905.

ARRANGED ALPHABETICALLY.

ABBREVIATIONS—P., President; V.-P., Vice-President; S., Secretary; C. S., Corresponding Secretary; T., Treasurer; O., Orator; C., Censor; indicating the offices the members hold or have held.

Members are particularly requested to notify the Secretary promptly on making any changes in their post-office.

The Secretary will esteem it a favor if any member will write him at once on noticing any inaccuracy or omission in the roll.

Name.	Post-office.	County.	Admitted.
Aaron, I. E	Lyons	Tattnall	1904
Adair, W. J	Rockmart	Polk	1897
Adair, R. E	Taylorsville	Bartow	1897
Adams, F. L	Elberton	Elbert	1899
Adams, W. E	Madison	Morgan	1903
Ainesworth, Harry	Thomasville	Thomas	1902
Alexander, Orlando L	Reidsville	Tattnall	1899
Alexander, G. L	Forsyth	Monroe	1894
Alexander, W. H	Blakely	Early	1900
Allen, G. O	Fargo	Clinch	1905
Allen, H. D	Milledgeville	Baldwin	1891
Almond, B. C	Winder	Jackson	1905
Amster, L	Atlanta	Fulton	1894
Anchors, H. L	Haddock	Jones	1899
Anderson, N. Z	Covington	Newton	1894
Anderson, J. M	Shiloh	Harris	1900
Anderson, J. F	Clinton	Jones	1901

Name.	Post-office.	County.	Admitted.
Andrews, C. R.	Atlanta	Fulton	1905
Ansley, W. S.	Decatur	DeKalb	1905
Anthony, E. R., (V.-P.)	Griffin	Spalding	1887
Armstrong, W. B.	Atlanta	Fulton	1900
Arnold, T. L.	Ford	Bartow	1902
Ashcraft, J. E.	Atlanta	Fulton	1903
Asher, W. T.	Atlanta	Fulton	1901
Ashford, J. W.	Madison	Morgan	1900
Avant, A. L. R.	Statesboro	Bulloch	1895
Avary, Arch.	Atlanta	Fulton	1887
Avary, J. C.	Atlanta	Fulton	1889
Aycock, W. H.	Williamson	Pike	1905
Ayers, C. L.	Carnesville	Franklin	1905
Bacon, W. W.	Albany	Dougherty	1890
Bailey, J. W.	Gainesville	Hall	1861
Bailey, E. M.	Acworth	Cobb	1899
Bailey, T. S.	Newnan	Coweta	1904
Baker, Thos. N.	Higgston	Montgomery	1899
Baird, Jas. B., (S., O., P.)	Atlanta	Fulton	1872
Baldwin, M. A.	Cuthbert	Randolph	1890
Barfield, F. G.	Cuthbert	Randolph	1904
Barge, A. A.	Newnan	Coweta	1903
Barnett, J. M.	Pretonia	Dougherty	1903
Barnett, S. T.	Atlanta	Fulton	1905
Barnum, R. E. L.	Richland	Stewart	1892
Barron, R. B., (V.-P., O.)	Macon	Bibb	1864
Barrow, C.	Savannah	Chatham	1903
Barrow, G. W.	Americus	Sumter	1903
Barton, J. J.	Hatoff	Laurens	1904
Barton, J. R.	Forrest Park	Clayton	1905
Barton, W. B.	Morrow	Clayton	1899
Baskin, C. L.	Temple	Carroll	1902
Bates, J. M.	Canton	Cherokee	1904
Baxton, Thos. A.	Girard	Burke	1901
Belcher, F. S.	Mansfield	Newton	1903
Bell, A. K.	Madison	Morgan	1889
Bell, W. J.	Atlanta	Fulton	1900
Belt, L. J.	Millen	Screven	1888
Benedict, S. C. (O., C., P.)	Athens	Clarke	1883
Bennett, J. C.	Jefferson	Jackson	1905
Benson, Chas. F.	Atlanta	Fulton	1897
Benson, M. F.	Atlanta	Fulton	1900
Binion, W. W.	Benevolence	Randolph	1893

Name.	Post office.	County.	Admitted.
Bivins, T. F.	Vienna	Dooly	1897
Bizzell, B. W.	Atlanta	Fulton	1894
Black, A. H.	Thomaston	Upson	1893
Blackburn, D. H.	Dover	Screven	1902
Blalock, W. J.	Atlanta	Fulton	1894
Block, E. B.	Atlanta	Fulton	1902
Bloomfield, Jas. C.	Athens	Clarke	1890
Bomar, E. P.	Ohoopee	Tattnall	1903
Bond, B. F.	Carrollton	Carroll	1905
Borders, D. J.	Calhoun	Gordon	1899
Borders, W. A.	Sonoraville	Gordon	1905
Born, W. H.	McRae	Telfair	1902
Bowdoin, J. P.	Adairsville	Bartow	1905
Bowen, J. H.	Canon	Franklin	1905
Boyd, Chas.	Osierfield		1904
Boyett, A. S.	Draneville	Marion	1897
Boynton, Chas. E.	Atlanta	Fulton	1900
Bradley, Francis.	Atlanta	Fulton	1900
Bradley, John H.	Macon	Bibb	1899
Branham, H. M.	Brunswick	Glynn	1905
Brawner, Jas. N.	Atlanta	Fulton	1900
Brigham, W. R.	Dublin	Laurens	1900
Brigham, J. C.	Girard	Burke	1891
Brightwell, Chas. P.	Augusta	Richmond	1901
Brinson, J. W.	Wrightsville	Johnson	1901
Brock, C. O.	Jefferson	Jackson	1901
Brooks, H., Jr.	Waycross	Ware	1901
Brown, E. C.	Hawkinsville	Pulaski	1905
Brown, George.	Atlanta	Fulton	1899
Brown, L. R.	Sharon	Taliaferro	1905
Brown, R. E.	Dublin	Laurens	1903
Brown, W. T.	Atlanta	Fulton	1905
Bryan, J. A.	Pendergrass	Jackson	1898
Bryant, W. C.	Atlanta	Fulton	1900
Bryant, W. J.	Summerville	Chattooga	1892
Bucher, C. A.	Fitzgerald	Irwin	1905
Buford, O. H.	Cartersville	Bartow	1904
Bullard, T. B.	Palmetto	Campbell	1903
Bullard, W. M.	Monticello	Jasper	1897
Bullard, Wm. L.	Columbus	Muscogee	1900
Burdett, J. R.	Tennille	Washington	1889
Burns, J. K.	Clarkesville	Habersham	1897
Burt, A. Moody.	Macon	Bibb	1896
Bush, E. B.	Colquitt	Miller	1895

Name.	Post-office.	County.	Admitted.
Bush, O. B.	Pelham	Mitchell.	1897
Bussey, N. B.	Waverly Hall	Harris	1903
Byron, J. L.	Jackson	Butts	1902
Calhoun, A. T.	Cartersville	Bartow	1894
Calhoun, A. W. (V.-P., C., P.)	Atlanta	Fulton	1874
Calhoun, W. W.	Bluffton	Clay	1905
Callaway, J. A.	Milledgeville	Baldwin	1888
Campbell, J. L.	Atlanta	Fulton	1894
Campbell, Wm. E.	Atlanta	Fulton	1900
Campbell, W. H.	Chipley	Harris	1905
Carson, M. F.	Griffin	Spalding	1897
Carter, J. G.	Scott	Johnson	1903
Carter, J. N.	Savannah	Chatham	1905
Carter, L. A.	Nashville	Berrien.	1905
Carter, W. D.	Winterville	Clarke.	1898
Cartledge, E. C.	Atlanta	Fulton	1905
Carswell, N. T.	Macon.	Bibb.	1897
Cason, R. A.	Jewell	Hancock	1903
Cater, R. L.	Perry	Houston	1904
Cato, F. L.	DeSoto	Sumter.	1893
Cato, R. E.	Americus	Sumter.	1893
Chambers, R. A.	Columbus	Muscogee	1903
Champion, W. L.	Atlanta	Fulton	1894
Chance, A. A.	Wadley	Jefferson	1902
Chancy, M. G.	Offerman.	Pierce.	1904
Chapman, W. A.	Cedartown	Polk	1905
Chappell, R. J.	Dudley.	Laurens	1904
Charlton, T. J.	Savannah	Chatham	1903
Chason, G.	Bainbridge	Decatur	1902
Chason, J. D.	Bainbridge	Decatur	1895
Chason, Thomas	Donaldsonville	Decatur	1895
Cheatham, W. B.	Dawson	Terrell	1880
Cheney, J. N.	Silver Creek.	Floyd	1905
Chisholm, J. F.	Savannah	Chatham	1903
Christian, J. M.	Celeste.	Wilkes	1898
Christopher, A. F.	Mineral Bluff	Fannin	1905
Clark, M. A. (V. P.)	Macon	Bibb	1893
Clarke, G. S.	Hartwell.	Hart	1902
Clark, P. S.	Darien	McIntosh.	1890
Clay, T. S.	Savannah	Chatham	1903
Clements, H. N.	Lenox	Berrien	1905
Cloud, R. B.	Austell.	Cobb.	1905
Coile, F. W.	Winterville	Oglethorpe.	1897
Coile, J. G.	Monticello	Jasper	1897

Name.	Post-office	County.	Admitted.
Cole, J. E	Middleton	Elbert	1901
Cole, J. F	Carrollton	Carroll	1884
Coleman, E. M	Atlanta	Fulton	1903
Coleman, E. T.	Graymount	Emanuel	1905
Coleman, Thos. D	Augusta	Richmond	1891
Coleman, J. D	Henderson	Houston	1897
Collier, T. J	Griffin	Spalding	1899
Collier, T. J	Atlanta	Fulton	1905
Comer, Ralph	Tignall	Wilkes	1903
Cook, J. P.	Colquitt	Miller	1902
Cook, John O.	Savannah	Chatham	1901
Cooley, M	Savannah	Chatham	1905
Cooper, Hunter P	Atlanta	Fulton	1894
Corson, E. R.	Savannah	Chatham	1895
Corbin, M. X.	Savannah	Chatham	1898
Corry, John A.	Barnesville	Pike	1900
Cowart, J. W.	Walden	Bibb	1904
Cox, R. P.	Rome	Floyd	1891
Cox, W. J.	Barnesville	Pike	1894
Crawford, O. G.	Sasser	Terrell	1898
Crawford, A. H.	Abbeville	Wilcox	1893
Crawford, J. M.	Atlanta	Fulton	1888
Crawford, W. B.	Lincolnton	Lincoln	1900
Crawford, W. B.	Savannah	Chatham	1903
Crichton, L. M.	Atlanta	Fulton	1900
Croley, J. G.	Milledgeville	Baldwin	1904
Cro ner, James D.	Atlanta	Fulton	1900
Crook, Jno. M.	Columbus	Muscogee	1903
Crowe, W. A.	Atlanta	Fulton	1892
Crowther, J. A.	Savannah	Chatham	1902
Crozier, J. H.	Cedar Springs	Early	1889
Culpepper, W. F.	Senoia	Coweta	1892
Cunningham, F. M.	Macon	Bibb	1905
Currie, M. L.	Ailey	Montgomery	1890
Curry, J. W.	Rome	Floyd	1905
Curtis, C. M.	College Park	Fulton	1905
Dallas, D. L.	Pavo	Thomas	1905
Daniel, J. Wallace	Glenville	Tattnall	1898
Daniel, Jno. W.	Savannah	Chatham	1892
Daniels, B. A.	Thomasville	Thomas	1903
Darby, J. I.	Columbus	Muscogee	1893
Daves, J. M.	Blue Ridge	Fannin	1902
Davidson, A. A.	Augusta	Richmond	1896

Name.	Post-office.	County	Admitted.
Davidson, A. C	Sharon	Taliaferro	1887
Davis, E. C	Atlanta	Fulton	1894
Davis, Jeff	Toccoa	Habersham	1893
Davis, J. P	Tennille	Washington	1903
Davis, T. B	Newnan	Coweta	1892
Davis, Wm. L	Albany	Dougherty	1893
Day, J. B. H	Social Circle	Walton	1899
Deadwyler, M. P	Maysville	Banks	1904
Deadwyler, O. L	Carlton	Madison	1898
Dean, J. G	Dawson	Terrell	1889
Dean, W. L	Woodstock	Cherokee	1894
Deas, A. J	Augusta	Richmond	1904
DeLamar, W. C	Mountain Hill	Harris	1903
Derrick, H. C	Oglethorpe	Macon	1905
Derry, H. P	Macon	Bibb	1903
Denson, E. J	Allentown	Wilkinson	1897
Des Portes, W. L	Columbus	Muscogee	1899
Dexter, C. A	Columbus	Muscogee	1905
Dillard, James B	Davisboro	Washington	1901
Dismuke, W. J	Irwinville	Irwin	1905
Donaldson, H. R	Atlanta	Fulton	1905
Dorminy, E. J	Fitzgerald	Irwin	1902
Dorminy, J. N	Seville	Wilcox	1901
Dorough, G. D	Quitman	Brooks	1902
Dorsey, R. T., Jr	Atlanta	Fulton	1902
Doster, H. W	Rocky Ford	Screven	1904
Doughty, Wm. H., Jr. (V.-P)	Augusta	Richmond	1880
Downey, J. N	New Holland	Hall	1904
Dozier, R. T	Milledgeville	Baldwin	1893
Drewry, T. Ellis	Griffin	Spalding	1892
Drewry, N. B	Griffin	Spalding	1897
Duckett, P. Y	Cornelia	Habersham	1902
Duggan, J. H	Irwinton	Wilkinson	1884
Duncan, J. W	Atlanta	Fulton	1887
Dunn, M. F	Savannah	Chatham	1903
Dupre, Ira E	Danville	Twiggs	1893
Earle, C. E	Elberton	Elbert	1902
Earnest, J. G	Atlanta	Fulton	1882
Eason, M. W	Meinhard	Chatham	1902
Eberhardt, B. F	Dry Pond	Jackson	1898
Eberhardt, L. P	Elberton	Elbert	1901
Edenfield, W. N	Pinehurst	Dooly	1897
Edge, J. H	Toccoa	Habersham	1904

Name	Post-office.	County.	Admitted
Edwards, C. A	Doerun	Colquitt	1903
Edwards, W. W	Butler	Taylor	1903
Edwards, Walter E.	Cordele	Dooly	1899
Elder, Eugene B.	Macon	Bibb	1900
Elder, S. A.	High Shoals	Oconee	1900
Elkin, W. S	Atlanta	Fulton	1882
Elliott, W. H. P	Savannah	Chatham	1884
Ellis, L. M.	Monticello	Jasper	1904
Ellis, S. T.	Hagan	Tattnall	1896
Ellis, J. N	Atlanta	Fulton	1899
Elrod, J. O.	Forsyth	Monroe	1904
Embry, B. L.	Villa Rica	Carroll	1900
Emery, W. B.	Atlanta	Fulton	1900
England, W. G	Cedartown	Polk	1902
Erwin, F. J.	Blairsville	Union	1905
Erwin, Geo. C.	Young Harris	Towns	1899
Evans, J. H	Davisborough	Washington	1897
Evans, W. W.	Higgston	Montgomery	1902
Eve, Hinton J.	Augusta	Richmond	1901
Ezell, H. E.	Monticello	Jasper	1902
Farley, W. E.	Hamilton	Harris	1903
Farmer, J. L.	Savannah	Chatham	1897
Faver, P	Fayetteville	Fayette	1905
Felton, H. E	Cartersville	Bartow	1905
Fincher, E. T	East Point	Fulton	1905
Fincher, T. H. P.	Jersey	Walton	1897
Fischer, L. C.	Atlanta	Fulton	1900
Fite, B. W	Resaca	Gordon	1899
Fitts, W. L.	Carrollton	Carroll	1890
Fitts, P. W.	Greenville	Meriwether	1897
Flowers, A. P	Atlanta	Fulton	1905
Folks, G. P.	Waltertown	Ware	1890
Ford, DeSaussure (v-P., C., P)	Augusta	Richmond	1857
Fort, A. G.	Lumpkin	Stewart	1905
Foster, J. J.	College Park	Fulton	1900
Fowler, A. L.	Atlanta	Fulton	1900
Fox, R. L.	Mt. Vernon	Montgomery	1902
Frazier, J. L.	McRae	Telfair	1903
Freeman, H. M	Toccoa	Habersham	1905
Fulcher, M. O	Waynesboro	Burke	1895
Fullilove, H. M.	Athens	Clarke	1900
Funkhouser, W. L.	Rome	Floyd	1905
Gaines, L. M	Atlanta	Fulton	1905

Name.	Post office.	County.	Admitted.
Gammage, J. T.	Pineview	Wilcox	1903
Gann, Wm. F	Columbus	Muscogee	1891
Garlington, T. R.	Rome	Floyd	1893
Garner, J. R	Atlanta	Fulton	1903
Garrett, L. G	Austell	Cobb	1905
Gaston, J. McF., Jr	Atlanta	Fulton	1894
Gaulden, Samuel S	Quitman	Brooks	1892
Gheesling, J. H	Greensboro	Greene	1891
Gholston, W. D	Danielsville	Madison	1902
Gibson, S	Thomson	McDuffie	1902
Giddings, C. G	Atlanta	Fulton	1902
Gilbert, W. L	Atlanta	Fulton	1905
Goethe, J. E	Ocilla	Irwin	1897
Goldsmith, J. M	Atlanta	Fulton	1905
Goldsmith, W. S	Atlanta	Fulton	1893
Goodrich, E. C. (T.)	Augusta	Richmond	1876
Goodrich, W. H	Augusta	Richmond	1900
Goodwyn, H. J.	Roopville	Carroll	1905
Goolsby, R. C	Juliette	Monroe	1891
Gostin, B. S	Macon	Bibb	1904
Gostin, G. P	Macon	Bibb	1902
Goss, I. H	Athens	Clarke	1877
Graham, St. J. B	Savannah	Chatham	1898
Greene, A. B.	Cartersville	Bartow	1904
Greene, E. M	Milledgeville	Baldwin	1903
Green, George F	Dublin	Laurens	1900
Green, S. H	Chattahoochee	Fulton	1892
Green, J. H	Decatur	DeKalb	1900
Green, Wm. L	Point Peter	Oglethorpe	1901
Greer, C. A	Oglethorpe	Macon	1905
Gregory, B. F	Lumpkin	Stewart	1903
Griffies, J. C	Burwell	Carroll	1905
Griffin, Archie	Luke	Wilcox	1900
Griffin, W. C.	Cartersville	Bartow	1897
Griffith, Jas. I	Atlanta	Fulton	1897
Grimes, George J	Columbus	Muscogee	1872
Guinn, J. A. (T.-P.)	Conyers	Rockdale	1896
Hall, J. R	Carnesville	Franklin	1898
Hall, Thos. M	Milledgeville	Baldwin	1899
Hamby, W. B	Fargo	Clinch	
Ham, E. P	Gainesville	Hall	1905
Hamilton, C	Rome	Floyd	1905
Hammond, J. H	LaFayette	Walker	1898

Name.	Post office.	County.	Admitted.
Hamrick, James D	Carrollton	Carroll	1899
Hancock, Thos. H	Atlanta	Fulton	1896
Hanie, A. P	Hartwell	Hart	1905
Harbin, R. M	Rome	Floyd	1894
Harbin, W. P	Rome	Floyd	1905
Hardeman, John	Haddocks	Jones	1899
Harden, W. P	Commerce	Jackson	1903
Hardin, L. S	Atlanta	Fulton	1902
Hardin, O. N	Homer	Banks	1901
Hardman, L. G. (V.-P.)	Commerce	Jackson	1877
Hardman, W. B	Commerce	Jackson	1892
Harper, Aubrey	Wray		1903
Harrington, A. F	West Point	Troup	1903
Harris, H. W	Dawson	Terrell	1903
Harris, E. A	Midville	Burke	1903
Harris, H. F	Atlanta	Fulton	1902
Harris, R. B	Savannah	Chatham	1885
Harrison, W. H., Jr	Augusta	Richmond	1886
Harrison, E. S	Thomson	McDuffie	1897
Harrold, C. C	Macon	Bibb	1905
Harvard, Virgil O	Arabi	Dooly	1900
Haslam, W. M	Pinehurst	Dooly	1904
Hawkins, J. S	Savannah	Chatham	1903
Haygood, A. G	Oxford	Newton	1899
Haygood, W. T	Farmington	Oconee	1905
Head, M. M	Zebulon	Pike	1903
Heard, C. D	Atlanta	Fulton	1905
Hendricks, W. H	Tifton	Berrien	1903
Heriot, G. W	Savannah	Chatham	1903
Herrman, H. A	Sandersville	Washington	1904
Herrman, J. D	Eastman	Dodge	1884
Hesse, H. W	Savannah	Chatham	1903
Hicks, Charles (C., P.)	Dublin	Laurens	1884
Hiers, J. Lawton (V.-P.)	Savannah	Chatham	1895
Hightower, R. H	Dublin	Laurens	1899
Hill, W. S	Pelham	Mitchell	1900
Hilsman, A. H	Albany	Dougherty	1901
Hilsman, P. L	Albany	Dougherty	1871
Hobbs, A. G	Atlanta	Fulton	1882
Hodges, L. W	Winder	Jackson	1905
Hodges, T. N	Oconee	Washington	1905
Hodgson, F. G	Atlanta	Fulton	1905
Hoke, Michael	Atlanta	Fulton	1901
Holland, M. M	Statesboro	Bulloch	1899

Name.	Post office.	County.	Admitted.
Holliday, A. C.	Athens	Clarke	1897
Holliday, W. Z.	Augusta	Richmond	1884
Hollis, R. L.	Hayston	Newton	1905
Holmes, J. B. S. (V.-P., P)	Atlanta	Fulton	1872
Holmes, O. L.	Covington	Newton	1904
Holmes, W. B.	Wadley	Jefferson	1899
Hooten, J. C.	Ellerslie	Harris	1903
Horne, J. M.	Finleyson	Pulaski	1905
Horsley, J. S.	West Point	Troup	1894
Horsley, J. S., Jr.	West Point	Troup	1896
Howard, C. N., Jr.	Columbus	Muscogee	1903
Howard, H. L.	Macon	Bibb	1904
Hubbard, F. M.	Commerce	Jackson	1900
Hubbard, T. V.	Atlanta	Fulton	1896
Huguley, G. Pope.	Atlanta	Fulton	1899
Hull, Marion McH.	Atlanta	Fulton	1900
Humphries, W. C.	Acworth	Cobb	1890
Hunter, A. P.	Tifton	Berrien	1899
Hurst, G. P.	Monroe	Walton	1905
Hurt, Chas. D. (c.)	Atlanta	Fulton	1890
Hurt, J. L.	Atlanta	Fulton	1904
Hutchins, M. B.	Atlanta	Fulton	1892
Hynds, R. W.	Atlanta	Fulton	1905
Ingram, H. R.	Coleman	Randolph	1900
Isbell, J. E. D.	Toccoa	Habersham	1905
Izlar, R. P.	Waycross	Ware	1898
Jackson, L. M.	Yatesville	Upson	
Jackson, Max.	Macon	Bibb	1897
Jackson, W. A.	Atlanta	Fulton	1905
Jamerson, A. M.	Jackson	Butts	1904
Jamerson, B. B.	Waverly Hall	Harris	1902
Jarnagin, W. C.	Atlanta	Fulton	1905
Jarrell, J. A.	Jackson	Butts	1899
Jarrell, J. G.	Savannah	Chatham	1899
Jarrell, W. W.	Thomasville	Thomas	1903
Jefford, H. M.	Sylvester	Worth	1904
Jelks, E. L.	Quitman	Brooks	1896
Jelks, N. P.	Hawkinsville	Pulaski	1882
Jenkins, C. J.	Edison	Calhoun	1900
Jennings, W. W.	Blakely	Early	1903
Jernigan, Charles S.	Sparta	Hancock	1899
Johns, J. H.	Atlanta	Fulton	1905
Johnson, G. H.	Savannah	Chatham	1902
Johnson, J. Clarence.	Atlanta	Fulton	1894

Name.	Post office.	County.	Admitted.
Johnson, P. M	Lovett	Laurens	1903
Johnson, M. M	Waycross	Ware	1905
Johnson, S. M	Wrightsville	Johnson	1904
Jones, E. F.	Herndon	Laurens	1903
Jones, E. G	Atlanta	Fulton	1905
Jones, Henry A	Millen	Screven	1898
Jones, J	Savannah	Chatham	1902
Jones, Louis H. (S. & TR.)	Atlanta	Fulton	1890
Jones, L. M	Milledgeville	Baldwin	1880
Jones, T. S	Jeffersonville	Twiggs	1893
Jones, W. T.	Atlanta	Fulton	1905
Keaton, P. H.	Kestler	Early	1889
Kelley, T. J.	Tennille	Washington	1884
Kellogg, W. C.	Augusta	Richmond	1905
Kendrick, W. S. (O.)	Atlanta	Fulton	1874
Kemmer, E. H.	Bishop	Oconee	1905
Kennedy, J. J	Collins	Tattnall	1902
Kennedy, W. D.	Metter	Bulloch	1902
Kennedy, J. P.	Atlanta	Fulton	1900
Kennon, B. M.	McRae	Telfair	1903
Kenyon, J. M	Weston	Webster	1903
Kenyon, O. T.	Dawson	Terrell	1892
Kesner, G. T.	Woodcliff	Screven	1905
Kime, R. R.	Atlanta	Fulton	1892
King, J. C.	Atlanta	Fulton	1900
Kirkendol, J. L.	Jewell	Hancock	1904
Lamar, L.	Dawson	Terrell	1903
Lane, L. P.	Stillmore	Emanuel	1895
Lattimore, Ralston	Savannah	Chatham	1898
LeConte, J. N.	Atlanta	Fulton	1900
Lee, J. E.	Waycross	Ware	1902
Lee, J. E.	Pinehurst	Dooly	1904
Lee, W. G	Macon	Bibb	1904
LeHardy, J. C. (T., V.-P., P.)	Savannah	Chatham	1868
LeSueur, J. L.	Roberta	Crawford	1904
Leonard, W. P.	Talbotton	Talbot	1902
Lewis, J. H.	Dawson	Terrell	1900
Liddell, J. A.	Cedartown	Polk	1899
Lindorme, A. H.	Atlanta	Fulton	1905
Little, A. G.	Valdosta	Lowndes	1902
Little, S. B.	Golbert	Madison	1904
Little, Wm. J.	Macon	Bibb	1898
Lively, M. M.	Statesboro	Bulloch	1905

Name.	Post-office.	County.	Admitted.
Lockhart, B. W	The Glades	Hall	1899
Lockhart, V. D. (V.-P.)	Mayesville	Banks	1891
Lokey, H. M	Atlanta	Fulton	1900
Longino, T. C	Atlanta	Fulton	1905
Longino, T. D	Atlanta	Fulton	1905
Lovvorn, J. L	Bowdon	Carroll	1894
Lovvorn, R. M	Bowdon	Carroll	1896
Lovvorn, W. P	Cecil	Berrien	1902
Lowry, T	Stilesboro	Bartow	1905
Lunsford, J. F	Preston	Webster	1903
Lyle, W. C	Augusta	Richmond	1896
McAfee, John C	Macon	Bibb	1899
McAllister, J. M. C	Mt. Vernon	Montgomery	1902
McArthur, J. H	Long Pond	Montgomery	1902
McArthur, Thomas J	Cordele	Dooly	1897
McBath, W. L	Avalon	Franklin	1900
McClain, C. F	Calhoun	Gordon	1903
McCrary, H. L	Royston	Franklin	1899
McCurry, I. L	Hartwell	Hart	1897
McDaniel, J. L	Atlanta	Fulton	1896
McDonald, J. M	McDonald	Coffee	1901
McDuffie, James H	Columbus	Muscogee	1893
McElroy, S. L	Willacoochee	Coffee	1903
McHatton, H. (C., V.-P., P.)	Macon	Bibb	1883
McIntosh, T. M	Thomasville	Thomas	1873
McKay, Mary E	Macon	Bibb	1904
McKenzie, J. N	Thomaston	Upson	1904
McLaws, R. B	Savannah	Chatham	1901
McLean, J. L	Birdford	Tattnall	1897
McMaster, D. E	Tennille	Washington	1894
McMaster, H. B. (C., V.-P.)	Waynesboro	Burke	1888
McNair, E	Jeffersonville	Twiggs	1904
McNaughton, Wm. J	Covena	Emanuel	1901
McRae, C. D	Rochelle	Wilcox	1893
McRae, F. W	Atlanta	Fulton	1887
Mack, Alexander	Decatur	DeKalb	1897
Malone, J. D	Marietta	Cobb	1891
Maloy, W. C	Rhine	Dodge	1893
Maloy, H. S	Milan	Telfair	1903
Mallory, R. A	Concord	Pike	1893
Maner, G. R	Warrenton	Warren	1905
Mann, John O	Elko	Houston	1899
Mangham, J. E	Reynolds	Taylor	1897

Name.	Post-office.	County.	Admitted.
Marchman, H. R	Villa Rica	Carroll	1900
Martin, H. H.	Savannah	Chatham	1902
Mathews, J. C	Griffin	Spalding	1905
Matthews, M. F	Athens	Clarke	1898
Mathews, W. J	Elberton	Elbert	1892
Mathews, A. B	Elberton	Elbert	1901
Mayhugh, James	Sutallee	Cherokee	1900
Meadows, J. M	Vidalia	Montgomery	1903
Meldrim C. H.	St. Simons Mills	Glynn	1902
Mickle, C. M.	Texas	Heard	1905
Middlebrooks, J. D.	Powder Springs	Cobb	1903
Miller, B. E.	Daisy	Tattnall	1899
Miller, R. L.	Tennille	Washington	1901
Miller, W. E	Eastman	Dodge	1902
Milner, C. T.	Waynesboro	Burke	1904
Minter, H. G.	Jakin	Early	1900
Mitchell, T. Emerson	Columbus	Muscogee	1896
Mobley, H. A	Vienna	Dooly	1891
Mobley, John W.	Milledgeville	Baldwin	1901
Mobley, R. H.	Lumber City	Telfair	1904
Moncrief, W. Hal	Atlanta	Fulton	1900
Montgomery, R. O.	Atlanta	Fulton	1897
Montgomery, Charles J.	Augusta	Richmond	1895
Moon, P. L.	Atlanta	Fulton	1902
Moorman, Ivy W.	Ambrose	Coffee	1900
Moore, K. P. (V. P., P., S., O., T.)	Macon	Bibb	1871
Moore, J. L.	Griffin	Spalding	1903
Moore, J. M.	Macon	Bibb	1897
Moore, N. M.	Augusta	Richmond	1901
Moore, W. R	Patterson	Pierce	1904
Morgan, J. B. (V.-P., P.)	Augusta	Richmond	1891
Morgan, E.	Vidalia	Montgomery	1902
Morrison, A. A.	Savannah	Chatham	1902
Mosley, R. C	Bolingbroke	Monroe	1899
Moss, W. H.	Atlanta	Fulton	1905
Mulherrin, W. A.	Augusta	Richmond	1905
Mull, J. C.	Shannon	Floyd	1902
Murphey, Eugene E	Augusta	Richmond	1900
Murphey, C. E.	Atlanta	Fulton	1901
Murray, S. A.	Buena Vista	Marion	1903
Napier, L.	Lumber City	Telfair	1904
Nash, R. D.	Norwood	Warren	1905
Nash, W. T.	Philomath	Oglethorpe.	1905

Name.	Post-office.	County.	Admitted.
Neal, J. W	Scotland	Telfair	1892
Neely, J. C	Reynoldsville	Decatur	1900
New, James E.	Dexter	Laurens	1901
Nicolson, Wm. Perrin	Atlanta	Fulton	1883
Niles, George M.	Marshallville	Macon	1893
Noble, G. H. (P.)	Atlanta	Fulton	1883
Nolan, C. T.	Marietta	Cobb	1899
North, A. C	Newnan	Coweta	1903
Norton, George M.	Savannah	Chatham	1899
Norton, W. E	Savannah	Chatham	1899
Nunn, R. J. (C., V.-P., P.)	Savannah	Chatham	1867
Nunnally, J. L.	Griffin	Spalding	1905
O'Daniel, M. H. (O., C., V.-P.)	Bullards	Twiggs	1882
O'Daniel, W. A. (O.)	Bullards	Twiggs	1886
Oden, T. E.	Blackshear	Pierce	1905
O'Kelly, B. I	Atlanta	Fulton	1905
O'Quinn, John H.	Patterson	Pierce	1900
Oertel, T. E	Augusta	Richmond	1900
Oliveros, B. F	Savannah	Chatham	1903
Olmstead, J. C.	Atlanta	Fulton	1886
Orear, W. B.	Savannah	Chatham	1903
Osborne, E. S.	Savannah	Chatham	1902
Overstreet, George M.	Sylvania	Screven	1899
Overstreet, James E.	Baxley	Appling	1901
Owens, W. W.	Savannah	Chatham	1891
Owens, Wm.	Atlanta	Fulton	1902
Page, J. M.	Dublin	Laurens	1904
Palmer, J. W.	Ailey	Montgomery	1902
Palmer, S. B.	Macon	Bibb	1905
Pate, R. H.	Unadilla	Dooly	1903
Patrick, J. Z	Statesboro	Bulloch	1905
Patten, W. L.	Milltown	Berrien	1895
Patterson, J. C.	Lumpkin	Stewart	1894
Patterson, F. D.	Cuthbert	Randolph	1895
Patterson, J. W.	Dawson	Terrell	1903
Pattillo, George R.	Culverton	Hancock	1899
Pattillo, L. T.	Atlanta	Fulton	1905
Parks, W. B.	Atlanta	Fulton	1882
Payne, George F.	Atlanta	Fulton	1894
Peacock, E. S.	Harrison	Washington	1901
Peacock, W. F.	Vidalia	Montgomery	1899
Peete, C. H.	Macon	Bibb	1893
Pendergrass, O. N.	Monroe	Walton	1900

Name.	Post-office.	County.	Admitted.
Perkinson, W. Howard	Woodstock	Cherokee	1900
Perry, A. C.	Covington	Newton	1900
Person, W. E.	Atlanta	Fulton	1905
Peterson, N.	Tifton	Berrien	1897
Phillips, S. Latimer	Savannah	Chatham	1890
Phillips, F. H.	Harlem	Columbia	1899
Pickett, F. B.	Ty Ty	Worth	1904
Pilcher, W. W.	Warrenton	Warren	1899
Pinckney, S. G. C.	Atlanta	Fulton	1900
Pirkle, W. C.	Baxley	Appling	1905
Ponder, W. P.	Forsyth	Monroe	1885
Powell, B. C.	Villa Rica	Carroll	1896
Powell, J. F.	Eastman	Dodge	1893
Powell, T. O. (P.)	Milledgeville	Baldwin	1867
Poer, J. M.	West Point	Troup	1900
Porter, J. L.	Augusta	Richmond	1905
Powers, B. P.	Egypt	Effingham	1902
Prather, Wm. S.	Americus	Sumter	1897
Prichard, J. E.	Resaca	Gordon	1905
Purse, B. S.	Savannah	Chatham	1895
Purse, M. A.	Atlanta	Fulton	1894
Quillian, D. D.	Athens	Clarke	1892
Quillian, H. P.	Commerce	Jackson	1888
Quillian, E. P.	Olympia	Lowndes	1902
Quillian, J. W.	Buford	Gwinnett	1905
Quinn, C. T.	Naylor	Lowndes	1893
Ray, Robert L.	Devereaux	Hancock	1899
Redding, Charles D.	Lindsay	Washington	1897
Redding, J. H.	Waycross	Ware	1893
Reid, C. W.	Pelham	Mitchell	1897
Reid, K. L.	Atlanta	Fulton	1905
Reid, R. S.	Savannah	Chatham	1903
Reynolds, H. V.	Marietta	Cobb	1899
Reynolds, W. H.	Lexington	Oglethorpe	1899
Richardson, C. H.	Montezuma	Macon	1886
Richardson, E. H. (O., C., V. P)	Atlanta	Fulton	1878
Riley, B. F.	Atlanta	Fulton	1905
Ridley, F. M. (O., C., P.)	LaGrange	Troup	1887
Ridley, Jr., R. B.	Atlanta	Fulton	1902
Ripley, E. C.	Barnesville	Pike	1897
Rippard, J. C.	Waycross	Ware	1898
Roach, G. S.	Johnston Station	Liberty	1902
Roberts, J. B. (V.-P.)	Atlanta	Fulton	1875

Name.	Post-office.	County.	Admitted.
Roberts, S. R.	Oxford	Newton	1905
Roberson, G. W.	Macon	Bibb	1903
Robertson, E. H.	Dallas	Paulding	1905
Robinson, W. C.	Atlanta	Fulton	1897
Rogers, F. S.	Coleman	Randolph	1900
Rogers, J. T.	Savannah	Chatham	1900
Rogers, O. L.	Sandersville	Washington	1901
Rowe, W. J.	Buford	Gwinnett	1897
Rose, John R.	Eastman	Dodge	1897
Ross, James T.	Macon	Bibb	1891
Rosser, J. P.	Atlanta	Fulton	1897
Roy, Dunbar.	Atlanta	Fulton	1892
Roughlin, L. C.	Atlanta	Fulton	1905
Rountree, A. M.	Adrian	Emanuel	1901
Rudicil, C. C. L.	Chickamauga	Walker	1905
Rudolph, H. L.	Gainesville	Hall	1904
Rumble, S.	Barnesville	Pike	1891
Rushin, W. E.	Daffin	Screven	1905
Saliba, M. M.	Savannah	Chatham	1902
Sample, R. L.	Statesboro	Bulloch	1902
Sanchez, S. E.	Barwick	Brooks	1904
Saxon, R. B.	Sylvania	Screven	1905
Scott, H. F. (o.)	Atlanta	Fulton	1879
Selman, J. L.	Douglasville	Douglas	1901
Selman, W. C.	Atlanta	Fulton	1905
Sessions, J. H.	Babcock	Miller	1905
Sessoms, W. C.	Brewton	Laurens	1904
Shannon, John R.	Cabaniss	Monroe	1893
Sharp, L. J.	Commerce	Jackson	1898
Sharp, C. K.	Arlington	Calhoun	1900
Sharp, W. B.	Atlanta	Fulton	1900
Sharp, J. P.	Baconton	Mitchell	1902
Shaw, W. J.	Rome	Floyd	1905
Shorter, James H.	Macon	Bibb	1893
Sibbett, W. F.	Douglas	Coffee	1890
Sigman, J. M.	Savannah	Chatham	1905
Sikes, J. A. B.	Iron City	Decatur	1899
Simmons, A. B.	Savannah	Chatham	1891
Sims, E. H.	Columbus	Muscogee	1892
Simpson, O. O.	Norcross	Gwinnett	1905
Simpson, A. W.	Washington	Wilkes	1905
Simpson, W. T.	Smithville	Lee	1892
Singleton, O. G.	Fort Valley	Houston	1892

Name.	Post-office.	County.	Admitted.
Slack, Henry R	LaGrange	Troup	1893
Smith, A.	Atlanta	Fulton	1903
Smith, A. A. (V.-P., P.)	Hawkinsville	Pulaski	1875
Smith, A. C.	Coldwater	Elbert	1890
Smith, Claude A.	Atlanta	Fulton	1900
Smith, C. O	Rocky Ford	Screven	1902
Smith, G. L.	Swainesboro	Emanuel	1905
Smith, H.	Smithville	Lee	1904
Smith, H. M.	Edgewood	DeKalb	1900
Smith, J. C.	Sand Hill	Carroll	1900
Smith, J. G.	McDonough	Henry	1900
Smith, J. M.	Valdosta	Lowndes	1899
Smith, J. R.	Douglasville	Douglas	1902
Smith, J. Y. H.	Rochelle	Wilcox	1902
Smith, K. A.	Gainesville	Hall	1899
Smith, L. S.	Edgewood	DeKalb	1905
Smith, S. J.	Elberton	Elbert	1897
Smith, S. S.	Watkinsville	Oconee	1901
Smith, W. Monroe	Atlanta	Fulton	1900
Smith, William T.	Robley	Crawford	1902
Somerfield, J. E.	Atlanta	Fulton	1899
Spence, I. N. B	Social Circle	Walton	1897
Spengler, N. L.	Donaldsonville	Decatur	1904
Spinks, J. M.	Rockmart	Polk	1905
Spinks, R. N.	Cedartown	Polk	1900
Spratling, Edgar J.	Forsyth	Monroe	1900
Spruell, F. M.	Temple	Carroll	1905
Standford, L. W.	Waverly Hall	Harris	1903
Standifer, W. B	Blakely	Early	1886
Stanley, R. H.	Dublin	Laurens	1902
Stapler, M. M.	Macon	Bibb	1897
Statham, J. R.	Americus	Sumter	1900
Steele, W. H.	Jackson	Butts	1905
Stephens, L. P.	Atlanta	Fulton	1888
Stewart, W. W.	Columbus	Muscogee	1892
Strickland, J. O.	Pembroke	Bryan	1905
Stirling, A. W.	Atlanta	Fulton	1896
Stockard, C. C.	Atlanta	Fulton	1896
Stone, J. J.	Hawkinsville	Pulaski	1903
Story, Z. McD.	Mistletoe	Columbia	1901
Story, Warren L.	Sycamore	Irwin	1897
Stothart, J. A.	Savannah	Chatham	1902
Stovall, C. T.	Vienna	Dooly	1897
Stovall, A. S. J.	Elberton	Elbert	1886

Name.	Post-office.	County.	Admitted.
Strickland, H. C.	Mayesville	Banks	1900
Strickler, C. W.	Atlanta	Fulton	1900
Sullivan, J. S.	Macon	Bibb	1893
Summey, Chas. L.	Stone Mountain	DeKalb	1897
Suttles, J. M.	Ben Hill	Fulton	1905
Sutton, F. M.	Atlanta	Fulton	1904
Swint, R. C.	Milledgeville	Baldwin	1902
Talbot, T. M.	Valdosta	Lowndes	1905
Tankersley, J. S.	Ellijay	Gilmer	1894
Tarver, H. R.	Guyton	Effingham	1904
Tate, William B. (V.-P.)	Tate	Pickens	1890
Tatum, R. H.	Pittsburg	Walker	1902
Taylor, A. P.	Thomasville	Thomas	1873
Taylor, R. H. (V.-P., S.)	Griffin	Spalding	1879
Taylor, T. J.	Dexter	Laurens	1902
Taylor, W. B.	Dexter	Laurens	1901
Taylor, W. E.	Atlanta	Fulton	1905
Teasley, B. C.	Hartwell	Hart	1905
Terrell, Henry W.	LaGrange	Troup	1900
Thomas, J. M.	Griffin	Spalding	1894
Thomas, L. J.	Dublin	Laurens	1900
Thomas, D. L.	Eatonton	Putnam	1900
Thomas, F. A.	Americus	Sumter	1904
Thomson, Ralph M.	Savannah	Chatham	1894
Thompson, J. D.	Toomsboro	Wilkinson	1904
Thornton, H. E.	Hartswell	Hart	1903
Thrash, E. C.	Atlanta	Fulton	1899
Thrasher, T. H.	Ashburn	Worth	1899
Toatle, G. W.	Vance	Tattnall	1902
Todd, J. S. (O., C., P.)	Atlanta	Fulton	1872
Toepel, Theodore.	Atlanta	Fulton	1901
Torbit, A. M.	St. Clair	Burke	1901
Train, J. K.	Savannah	Chatham	1904
Travis, W. D.	Covington	Newton	1903
Trotter, R. W.	Madison	Morgan	1894
Troutt, J. H.	Pennington	Morgan	1905
Trimble, G. C.	East Point	Fulton	1891
Trippe, R. J.	Cartersville	Bartow	1904
Tucker, W. B.	Chipley	Harris	1897
Tucker, C. L.	McDonough	Henry	1902
Turk, F. V.	Stilesboro	Bartow	1899
Turk, J. P.	Canton	Cherokee	1905
Turner, G. H.	Rico	Campbell	1905
Turner, W. J.	Ashburn	Dooly	1897
Tuten, J. G.	Jesup	Wayne	1903

Name.	Post-office.	County.	Admitted.
Underwood, J. M.	LaFayette	Walker	1903
Underwood, T. G.	Maysville	Banks	1905
Van Dyke, A. H.	Atlanta	Fulton	1903
Van Goidtsnoven, E.	Atlanta	Fulton	1887
Van Horne, J. T.	Monroe	Walton	1892
Van Marten, J. G.	Savannah	Chatham	1903
Vickers, T. E.	Harrison	Washington	1899
Visanska, S. A.	Atlanta	Fulton	1900
Walker, C. E.	Sycamore	Irwin	1899
Walker, J. L.	Waycross	Ware	1892
Wahl, F.	Savannah	Chatham	1900
Ward, C. P.	Atlanta	Fulton	1905
Ware, Dudley B.	Fitzgerald	Irwin	1901
Ware, J. E. H.	Kedron	Fayette	1900
Waring, T. P.	Savannah	Chatham	1903
Warnell, J. B.	Adabelle	Bulloch	1904
Watkins, A. R.	Cross Keys	DeKalb	1905
Weaver, J. D.	Eatonton	Putnam	1894
Weaver, J. L.	Baxley	Appling	1890
Weaver, O. H.	Macon	Bibb	1899
Webb, J. F.	Lyons	Tattnall	1897
Weddington, J. L.	Dublin	Laurens	1900
Weichselbaum, J.	Savannah	Chatham	1903
Wells, James R.	Stone Mountain	DeKalb	1900
Wenshirs, A. F.	Vernal	Randolph	1905
Westbrook, G. W.	Ila	Madison	1898
Westmoreland, W F (o. p.)	Atlanta	Fulton	1886
Westmoreland, J. W.	Atlanta	Fulton	1897
Whelchel, C. C.	Comer	Madison	1891
Whelchel, John E.	Gillsville	Hall	1891
Whelchel, H. C.	Douglas	Coffee	1900
Wheeler, A. E.	Atlanta	Fulton	1904
White, A. D.	Pendergrass	Jackson	1905
White, O. T.	Atlanta	Fulton	1902
White, G. R.	Savannah	Chatham	1902
Whitaker, J. M.	Milledgeville	Baldwin	1883
Wicker, R. H.	Rome	Floyd	1901
Wilcox, G. A.	Augusta	Richmond	1896
Wilkin, P. E.	Colquitt	Miller	1897
Wilkins, A. L.	Jesup	Wayne	1905
Williams, C. L.	Columbus	Muscogee	1903
Williams, W. J.	Pembroke	Bryan	1897
Williams, W. P.	Blackshear	Pierce	1890

Name.	Post-office.	County.	Admitted.
Williams, H. J., (o., c., p.)	Macon	Bibb	1883
Williams, V. G	Chipley	Harris	1903
Wills, T. J	Washington	Wilkes	1889
Wilmerding, W. E	Atlanta	Fulton	1900
Wilson, John Calhoun	Valdosta	Lowndes	1899
Wilson, P	Newborn	Newton	1905
Wilson, S	Yatesville	Upson	1905
Wimberly, Warren W	Adam's Park	Twiggs	1899
Wimberly, John S	Beatrice	Stewart	1891
Winchester, W. R	Macon	Bibb	1883
Wise, B. T	Plains	Sumter	1893
Wood, A. J	Fitzpatrick	Twiggs	1904
Wood, C. V	Cedartown	Polk	1900
Wood, W. E	Dalton	Whitfield	1905
Woods, W. D	Lon	Bulloch	1902
Woodson, R. C	Adel	Berrien	1904
Wolff, Bernard	Atlanta	Fulton	1894
Wootten, Louis O	Unadilla	Dooly	1897
Wright, H. S	Atlanta	Fulton	1904
Wright, Thomas R	Augusta	Richmond	1880
Wright, J. E	Macon	Bibb	1899
Wyley, S. J	Columbus	Muscogee	1904
Youmans, J. R	Stillmore	Emanuel	1901
Youmans, G. E	Adrain	Emanuel	1901
Youmans, L. P	Swainsboro	Emanuel	1901
Young, S. E	Midland	Muscogee	1903

NON-RESIDENTS.

Buford, O. H	Fort St. Phillip	Louisiana	1891
Gann, Dewell	Benton	Arkansas	1887
Griggs, A. F	Birmingham	Alabama	1899
Hood, J. W	Ocala	Florida	
Prather, W. B	Seale	Alabama	1894
Smith, R. E	Jacksonville	Florida	1903

HONORARY LIST.

This list is designated for aged, retired, or infirm members of the Association, who are entitled to all the privileges of the Association without the payment of dues.

The Secretary would be obliged to members to report any names that should go on this list.

Name.	Post-office.	County.	Admitted.
Bardwell, E. L.	Talbotton	Talbot	1872
Bell, A. A.	Madison	Morgan	1858
Brantly, F. M.	Senoia	Coweta	1849
Calhoun, F. R. (V.-P.)	Cartersville	Bartow	1873
Colding, C. H.	Savannah	Chatham	1882
Coleman, J. T.	Perry	Houston	1851
Dudley, M. J.	Sonoraville	Gordon	1880
Hopkins, T. S.	Thomasville	Thomas	1865
Jones, W. L.	Atlanta	Fulton	1849
McDonald C. M.	Leesburg	Lee	1892
Smith, C. D.	Atlanta	Fulton	1894
Smith, J. B.	Perry	Houston	1871

IN MEMORIAM.

☞ SPECIAL REQUEST TO EVERY MEMBER.—The Secretary *earnestly requests each member of the Association* to aid him in *filling* THE BLANKS in the following Roll of Deceased Members *by making the necessary inquiries* in their respective cities and counties, *and writing him at once*, on obtaining the desired information.

Name.	Post-office.	County.	Admitted.	Died.
Adams, C. B.	Augusta	Richmond	1868	1875
Aiken, W. F.	Savannah	Chatham	1895	1900
Alexander, J. R.	Cave Springs	Floyd	1849	
Alexander, L. B.	Forsyth	Monroe	1877	1891
Alexander, J. F. (P. C., V.-P.)	Atlanta	Fulton	1849	1901
Alfriend, E. W. (V.-P.)	Albany	Dougherty	1852	1886
Armstrong, W. S.	Atlanta	Fulton	1886	1896
Arnold, R. D. (V.-P., P.)	Savannah	Chatham	1849	1876
Ashworth, A. B. (S.)	Atlanta	Fulton	1887	1889
Avary, J. C.	Decatur	DeKalb	1859	1873
Baker, A. H.	Augusta	Richmond	1876	1891
Ballinger, M. R.	Floyd Springs	Floyd	1860	1886
Banks, J. T. (V.-P., P.)	Griffin	Spalding	1858	1880
Barker, A. H.	Augusta	Richmond	1876	1891
Barkwell, T. J.	Hawkinsville	Pulaski	1859	
Barnett, J. W.	Raytown	Taliaferro	1880	1890
Battey, Robert (C., P.)	Rome	Floyd	1859	1895
Battle, H. L.	Russellville	Monroe	1849	
Beasley, J. A.	West Point	Troup	1849	1897
Bell, T. W.	Busyville	Houston	1853	
Bignon, H. A.	Augusta	Richmond	1852	1870
Billings, S. A.	Columbus	Muscogee	1855	1872
Bizzell, W. D. (V.-P.)	Atlanta	Fulton	1882	1890
Black, R. C.	Augusta	Richmond	1852	1860
Blanchard, M. D.	Columbus	Muscogee	1903	1904
Bomar, B. F.	Atlanta	Fulton	1859	
Borcheim, L. E.	Atlanta	Fulton	1886	1887
Boswell, S. J. (V.-P.)	Columbus	Muscogee	1855	
Bosworth, Don B.	Atlanta	Fulton	1894	1898

Name.	Post-office	County.	Admitted.	Died
Bothwell, D. J	Vienna	Dooly	1849	
Bozeman, J. F	Atlanta	Fulton	1855	1877
Boring, John M. (V.-P.)	Atlanta	Fulton	1856	1891
Boyd, Montague L	Savannah	Chatham	1889	1897
Boyd, A. F	Savannah	Chatham	1891	1901
Boyd, W. H	Rome	Floyd	1903	1904
Brandon, D. S	Thomasville	Thomas	1873	1878
Brantley, S. D	Sandersville	Washington	1849	1897
Brawner, W. M	Lexington	Oglethorpe	1883	1891
Broadhurst, W. W	Augusta	Richmond	1852	1861
Brooks, C. A	Americus	Sumter	1888	1894
Brown, S. E	Eatonton	Putnam	1890	1896
Bruce, R. J	Thomasville	Thomas	1874	1878
Bryans, R. G	Jackson	Butts	1890	1894
Bunn, William	Wilna	Houston	1854	
Burgess, Wm. R. (T., O.)	Macon	Bibb	1870	1878
Burney, S. W. (P.)				1876
Burruss, L. K	Carnesville	Franklin	1899	1901
Campbell, Robert	Augusta	Richmond	1849	1885
Callaway, Enoch	LaGrange	Troup	1895	1901
Carroll, J. C	Laurens Hill	Laurens	1857	1870
Carroll, R. C	Augusta	Richmond	1873	1882
Carter, C. J	Lake Park	Lowndes	1889	1893
Castlen, F. G	Macon	Bibb	1867	1874
Carlton, J. M	Athens	Clarke	1882	1883
Cason, E. A	LaGrange	Troup	1897	1897
Charlton, T. J (C.)	Savannah	Chatham	1862	1886
Charters, W. M. (P.)	Savannah	Chatham	1851	1883
Chase, D. S	Augusta	Richmond	1862	
Cickey, D. C	Macon	Bibb	1894	1896
Clark, B. J	Barnesville	Pike	1896	1898
Clark, S. B	Rich Factory	Richmond	1852	
Campbell, H. F. (O.,V-P.,P.)	Augusta	Richmond	1851	1892
Coe, J. N	Flat Rock	Pike	1856	
Colding, C. H	Savannah	Chatham	1882	1894
Coleman, John S	Augusta	Richmond	1891	1892
Colley, F. S. (P.)	Monroe	Walton	1856	
Cooper, G. F. (O.,S.,V.-P.)	Americus	Sumter	1849	1882
Copeland, A. B	Hamilton	Harris	1878	1882
Cornwall, G. H	Hillsboro	Jasper	1854	
Cortelyou, P. R	Marietta	Cobb	1887	1902
Coursey, W. D	Vidalia	Montgomery	1894	1898
Crawford, S. S	Augusta	Richmond	1857	

Name.	Post-office.	County.	Admitted.	Died
Crump, E. D.	Herndon	Burke	1872	1881
Cumming, H. M.	Augusta	Richmond	1862	1887
Cunningham, I. S.	Big Creek	Forsyth	1859	1862
Cunningham, W. D.	Jasper	Pickens	1859	1866
D'Alvigney, N	Atlanta	Fulton		1877
Davenport, C. W.	Point Peter	Oglethorpe	1852	
Davenport, H. S.	Calhoun	Gordon	1859	
Davis, W. L.	Albany	Dougherty	1849	1874
Deadwyler, M. P. (V.-P.)	Elberton	Elbert	1868	1895
Dean, S. H.	Conyers	Rockdale	1856	
Dearing, W. E.	Augusta	Richmond	1852	1867
DeCortez, C. A	Savannah	Chatham	1872	
Dickinson, J. T.	Albany	Dougherty	1857	
Dickinson, R. Q. (V.P., P.)	Albany	Dougherty	1850	
Divine, K. C.	Atlanta	Fulton	1882	1899
Dobbins, W. O.	Fort Gaines	Clay	1883	1890
Dostor, B. R.	Blakely	Early	1873	1903
Dostor, B. R., Jr.	Blakely	Early	1896	1899
Doughty, Henry Campbell	Augusta	Richmond	1896	1899
Doughty, W. H	Augusta	Richmond	1857	1905
Dugas, L. A. (P.)	Augusta	Richmond	1852	1884
Duncan, Wm.	Savannah	Chatham	1868	1900
Dupree, L. J.	Camilla	Mitchell		1890
Engram, R. O.	Montezuma	Macon	1881	1893
Eve, Joseph A.	Augusta	Richmond	1852	1886
Eve, S. C.	Augusta	Richmond	1854	1868
Felder, W. L.	Augusta	Richmond	1857	1867
Fish, J. D. (T.)	Savannah	Chatham	1875	1879
Fitzgerald, E.	Macon	Bibb	1882	1885
Ford, L. D. (T.)	Augusta	Richmond	1849	1884
Fort, Moses T.	Hawkinsville	Pulaski	1859	1878
Foster, Eugene (V.-P., C., P.)	Augusta	Richmond	1875	1903
Freeman, S. H.	Dacula	Gwinnett	1891	1897
Frederick, H. F.	Hawkinsville	Pulaski	1897	1903
Franklin, M. A.	Macon	Bibb	1849	1858
Frazier, W. M.	Hawkinsville	Pulaski	1850	
Gaither, Henry	Oxford	Newton	1851	1890
Gaither, B. T.	Oxford	Newton	1852	1853
Gardner, J. W	Augusta	Richmond	1857	
Gaston, J. McF	Atlanta	Fulton	1884	1904
Gerdine, John	Athens	Clarke	1882	1903

Name.	Post office.	County.	Admitted.	Died
Gilmer, William B	Macon	Bibb	1893	1899
Girardy, Edward	Augusta	Richmond	1852	1859
Gordon, J. M	Savannah	Chatham	1849	
Gray, James A. (s.)	Atlanta	Fulton	1882	1887
Gray, S. H	Barnesville	Pike	1871	1885
Green, A. B.	Pond Town	Sumter	1849	
Green, H. K	Macon	Bibb	1849	1867
Green, Thomas F	Milledgeville	Baldwin	1849	1879
Gregory, J. D		Sumter	1849	
Griffin, C F	Cassville	Bartow	1888	1893
Griggs, A. W.(o.,v.-p.,c.,p.)	West Point	Troup	1866	1900
Griggs, R. E	Columbus	Muscogee	1892	1897
Grimes, T. W	Columbus	Muscogee	1855	1882
Guerard, J. N	Savannah	Chatham	1902	1903
Habersham, J. C	Savannah	Chatham	1853	
Habersham, J. C., Jr.(v.-p.)	Savannah	Chatham	1866	1881
Habersham, S. E	Eatonton	Putnam	1870	
Hagan, Hugh	Atlanta	Fulton	1892	1898
Hall, M. R	Warrenton	Warren	1900	1904
Hallum, J. W	Carrollton	Carroll	1891	1895
Hammond, D. W.(v.-p., c.)	Macon	Bibb	1857	1887
Harden, W. P	HarmonyGrove	Jackson	1852	1885
Hardon, V. O. (o.)	Atlanta	Fulton	1886	1904
Harrell, W. J	Bainbridge	Decatur	1874	1881
Harris, S. N. (v.-p.)	Savannah	Chatham	1851	1854
Harris, N. O	Atlanta	Fulton	1887	1896
Harris, Juriah (o., v.-p)	Savannah	Chatham	1852	1876
Harrison, Gabriel	Macon	Bibb		1862
Hart, A. C	Waynesboro	Burke	1852	
Hatch, Milo G. (c.)	Tennille	Washington	1883	1897
Hatchett, J. M	Fort Gaines	Clay	1892	1892
Havis, M. W	Perry	Houston	1854	1890
Hawes, E. C	Appling	Columbia	1852	
Hawkins, A. M. F	Ball Ground	Cherokee	1891	1903
Hawkins, S. B	Americus	Sumter	1871	1892
Heard, T. O	Griffin	Spalding	1867	
Hendrick, J. B	Covington	Newton	1857	1881
Henry, G. C	West Point	Troup	1872	
Hollis, T. B.	Bolingbroke	Monroe	1897	1901
Holt, W. F. (v.-p., p.)	Macon	Bibb	1867	1901
Hook, E. B	Augusta	Richmond	1857	1862
Houston, J. P. R	Savannah	Chatham	1873	1892
Howell, Dan H. (s.)	Atlanta	Fulton	1878	1899

Name.	Post-office.	County.	Admitted.	Died
Hoxey, Thomas	Columbus	Muscogee	1849	1853
Hollingsworth, W. T	Madison	Morgan	1857	1893
Holmes, G. W. (V.-P., P., C.)	Rome	Floyd	1867	1890
Hoyt, W. D	Rome	Floyd	1872	1904
Holmes, T. M.(O.)	Rome	Floyd	1883	1891
Hamilton, J. L	Stone Mountain	DeKalb	1859	1890
Hunter, E. H. W	Louisville	Jefferson	1867	1883
Ingraham, E. P	Albany	Dougherty	1870	1873
Irvin Robert	Augusta	Richmond	1880	1881
Johnson, C. W	Macon	Bibb	1870	1875
Johnson, John M	Atlanta	Fulton	1866	1886
Joiner, W. W	Hawkinsville	Pulaski	1897	1900
Jones, B O	Atlanta	Fulton		
Jones, J. W	Atlanta	Fulton	1857	1871
Jowers, Clebe	Americus	Sumter	1897	1897
Kennedy, L. P	Atlanta	Fulton	1890	1892
Kennebrew, Henry	Athens	Clarke	1883	1886
Kirksey, E. J. (V.-P.)	Columbus	Muscogee	1871	1877
Kollock, P. M. (P.)	Savannah	Chatham	1852	1872
Lamar, T. R. (V.-P.)	Macon	Bibb	1849	1859
Lockhart, R. H	Columbus	Muscogee	1855	1859
Lanier, S. J	Mt. Airy	Habersham	1890	1902
Lattimer, C. T	Macon	Bibb	1889	1889
Lawrence, L. L	Blountsville	Jones	1889	1890
Le Conte, Jos	Berkeley	California	1849	1901
Leitner, C. B	Columbus	Muscogee	1852	1897
Lightfoot, W. S	Macon	Bibb	1849	1864
Long, Crawford W	Athens	Clarke	1849	1878
Logan, J. P. (P.)	Atlanta	Fulton	1858	1891
Love, Wm. Abram (V.-P.)	Atlanta	Fulton	1866	1898
Lumpkin, George	Maxey's Depot	Oglethorpe	1859	
Lumpkin, S. P	Watkinsville	Clarke	1859	
Mackie, J. D	Augusta	Richmond	1852	1854
Maddox, W. D	Monticello	Jasper	1849	
Laffit, R. G. W	Dalton	Whitfield	1859	
Martin, J. D	Savannah	Chatham	1894	1898
Matthews, S. M	Quitman	Brooks	1900	1901
Matthews, W. B	Fort Valley	Houston	1884	1885
McBride, W. G	Oconee	Washinton	1850	1873
McDowell, J. M	Barnesville	Pike	1887	1891
McGolrick, R	Macon	Bibb	1849	1853

Name.	Post-office.	County.	Admitted.	Died
McKinley, C. A.	Newnan	Coweta	1859	
McMillen, J. E.	Columbus	Muscogee	1872	1883
Means, A. (V.-P.)	Oxford	Newton	1851	1883
Means, O. S.	Oxford	Newton	1857	
Means, W. A.	Hendrix	Upson	1899	1900
Meniere, Wm. S.	Madison	Morgan	1857	
Milam, R. J.	Fairburn	Campell	1882	1882
Miller, H. V. M.	Atlanta	Fulton	1851	1896
Moran, C. A.	Atlanta	Fulton	1895	1903
Morrison, D. H.	Savannah	Chatham	1868	1869
Mulligan, G. W. (V.-P., P.)	Washington	Wilkes	1883	1897
Musgrove, W. C. (C., S.)	Midville	Burke	1849	1876
Nash, R. A.	Marion	Twiggs	1849	
Nesbit, D. B.	Eatonton	Putnam	1894	1900
Nesbit, R. H.	Eatonton	Putnam	1854	1873
Noell, S. G.	Ypsilanti	Talbot	1892	1892
Nottingham, C. B, (S., T., C., P.)	Macon	Bibb	1849	1875
Nunn, R. M.	Savannah	Chatham	1871	1873
O'Daniel, William (T., P.)	Bullard	Twiggs	1870	1900
Ogilby, H. J. (V.-P.)	Madison	Morgan	1849	1873
O'Keefe, D. C. (S.)	Atlanta	Fulton	1852	1871
Orme, L. H. (S.)	Atlanta	Fulton	1866	1872
Owen, J. D.		Baldwin	1850	
O'Sullivan, ——.	Cork	Lee	1849	
Parsons, J. M.	Russellville	Monroe		
Perdue, H.	Barnesville	Pike	1889	1896
Philpot, W. H.	Talbotton	Talbot	1857	1905
Pitts, G. W.	Star	Butts	1859	
Pittman, S. S.	Chipley	Harris	1900	1900
Poore, J. J.	Monroe	Walton	1894	1896
Pope, N. O.	Atlanta	Fulton	1900	1904
Posey, J. F.	Savannah	Chatham	1851	
Powell, T. S. (V.-P.)	Atlanta	Fulton	1857	1896
Pringle, W.	Covington	Newton		
Quarterman, K. A.	Walthourville	Liberty	1885	
Ragan, Isham H.	Palmyra	Lee	1856	
Raines, Thomas	Atlanta	Fulton	1872	1883
Raines, T. L.	Atlanta	Fulton	1882	1884
Rauschenberg, Christian	Atlanta	Fulton	1861	1878
Richardson, C. P.	Savannah	Chatham	1851	1853
Ridley, R. A. T. (V.-P.)	LaGrange	Troup	1859	1871

Name.	Post-office.	County.	Admitted.	Died
Robertson, J. J	Washington	Wilkes	1852	1872
Robinson, G. P.	Atlanta	Fulton	1899	1902
Robison, W. R.	Milledgeville	Baldwin	1896	1904
Roddy, R. L. (v.-p.)	Forsyth	Monroe	1849	1878
Roy, G. G.	Atlanta	Fulton	1878	1901
Rudisill, B. F.	Forsyth	Monroe	1887	1901
Ruffin, W. R.	Augusta	Richmond	1852	
Russell, W. J	Lawrenceville	Gwinnett	1861	
Ryan, T. D. L.	Hawkinsville	Pulaski	1859	1876
Stafford, S. J.	Madison	Morgan	1856	1859
Searcy, D. B.	Bolingbroke	Monroe	1849	1885
Shropshire, J. W.			1871	
Simmons, J. N	Atlanta	Fulton	1850	1871
Simmons, J. S.	Gainesville	Hall	1873	1881
Simmons, S. B.	Augusta	Richmond	1852	1867
Simmons, T. A.	Irwinton	Wilkinson	1871	1871
Slaughter, T. J.	Villa Rica		1851	1889
Smith, A. D.	Montezuma	Macon	1871	
Smith, C. W	Jonesboro	Clayton	1859	
Smith, Hiram	Augusta	Richmond	1876	1888
Smith, H. H	Augusta	Richmond	1886	1887
Smith, R. M. (c.)	Athens	Clarke		1879
Smith, Thomas	Savannah	Chatham	1858	1876
Spier, W. A	Grantville	Coweta	1859	
Stallings, J. D.	Preston	Webster	1871	
Stanford, F. A.	Columbus	Muscogee	1849	1885
Starr, E. P	Savannah	Chatham	1868	1873
Steele, H	Knoxville	Crawford	1849	
Steele, R. T.	Fairburn	Campbell	1849	
Steiner, H. H.	Augusta	Richmond	1857	1892
Stevens, W. B.	Forsyth	Monroe	1849	
Sterling, W. L.	Atlanta	Fulton	1878	1894
Stewardson, Thomas	Savannah	Chatham	1849	
Stone, Geo. H.	Savannah	Chatham	1875	1899
Stovall, G. M.	Elberton	Elbert	1894	1894
Stozier, L. L.	Albany	Dougherty	1867	
Strother, W. A.	Albany	Dougherty	1867	1896
Sutton, C. B.		Lee	1856	
Taliaferro, V. H. (v.-p.)	Atlanta	Fulton	1857	1887
Taylor, E. T.	Columbus	Muscogee	1855	
Taylor, J. P	Haralson	Coweta	1859	1897
Taylor, R. N.	Hawkinsville	Pulaski	1850	

Name.	Post office.	County.	Admitted.	Died
Thomas, J. G. (V.-P., P., C., T.)	Savannah	Chatham	1867	1885
Thompson, Chas	Macon	Bibb	1849	1854
Thompson, Wm. L	Pitts	Wilcox	1897	1898
Trammel, A. A	Forsyth	Monroe	1856	
Tucker, O. W	Brunswick	Glynn	1890	1891
Tyson, J. D	Adrain	Emanuel	1893	1904
Underwood, J. B	Cave Springs	Floyd	1866	1881
Van Meter, J. N	Euharlee	Bartow	1879	1881
Wall, C. D	Columbus	Muscogee	1899	1900
Wall, W. W	Calhoun	Gordon	1869	
Walker, T. F	Cochran	Pulaski	1858	1888
Walker, F	Macon	Bibb	1889	1898
Ware, A. E. O			1859	
Warring, J. J	Savannah	Chatham	1853	1888
Watson, W. A	Jefferson	Jackson	1883	1889
Watson, G. B	Acree	Worth	1897	1897
Wells, C. H	Savannah	Chatham	1853	1854
Wells, W. B	Chattanooga	Tennessee	1873	1891
Wells, Charles (P.)	Perry	Houston	1849	
West, C. W	Savannah	Chatham	1853	1859
West, J. N	Toccoa	Habersham	1901	1903
Westmoreland, W. F. (P)	Atlanta	Fulton	1856	1890
Wethington, R. T	Thomasville	Thomas	1884	1887
Whaley, W. S	Athens	Clark	1900	1903
White, S. G. (V.-P.)	Milledgeville	Baldwin	1868	1871
Whitehead, A. G. (V.-P., P.)	Waynesboro	Burke	1861	1904
Whitlock, Isaac W	Washington	Wilkes	1852	1853
Wile, Henry	Atlanta	Fulton	1886	1887
Wiley, J. B	Macon	Bibb	1849	
Williams, T. L		Dooly	1849	
Williams, W. L	Fayetteville	Fayette	1873	
Willingham, Willis	Lexington	Oglethorpe	1849	1872
Winchester, E. A	DeSoto	Sumter	1893	1897
Winn, G. A	Bolingbroke	Monroe	1849	1862
Wirsen, G. F	Rutledge	Morgan	1871	1884
Woodson, C. T	Wilna	Houston	1854	
Wooten, W. H	Lexington	Oglethorpe	1852	1860
Word, T. J	Rome	Floyd	1887	1890
Word, R. C	Atlanta	Fulton	1855	1890
Wragg, J. A	Savannah	Chatham	1853	
Wright, P. H	Macon	Bibb	1869	1888
Yearwood, J. K	San Luis Potosi	Mexico	1901	1902
Yonge, Easton	Savannah	Chatham	1880	

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